Lines in the Landscape
Land reform and the landscape in southern Ukraine

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Acknowledgements

Field Studies are built on the kindness and curiosity of a great many strangers, who take time out of their busy schedules to indulge the questions of an outsider. This is another way of saying there I owe a debt of gratitude to a great many people in Kherson, without whom I would not have been able to complete this project. Special thanks go to Hrihory Baran from Kherson State University. I also wish to acknowledge the hospitality and assistance offered by the Kherson State Agricultural University, and specifically, the Vice Rector Vladimir Morozov, Professor Mykhaylo Ivanovich Fedorchuk, and Researcher Alexei Morozov. The International Finance Corporation office in Kherson also provided critical assistance and thanks go out to Ebbe Johnson and Lyuda Podakova. I wish to say a special thanks to all the respondents who, with spring planting season in full swing, took time out of their busy days to tell me about their farms.

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Abstract
This thesis is a field study focusing on change in the agricultural landscape following Ukraine’s post-independence land reform, in which Soviet era collective and state farms were dissolved and the ownership of 30 million hectares of agricultural land was distributed to former collective farm workers. It is based on an eight-week field visit to the southern Ukrainian province of Kherson, during which time the author was able to interview 21 farmers and agricultural officials. Economists, anthropologists and even political scientists have examined post-independence Ukrainian agriculture, and more specifically discussed reasons for the widely-observed continuities between agriculture today and under the Soviet period, despite sweeping reforms. Despite the prominence of land reform as a research subject in landscape studies, there are few landscape treatments of Ukrainian agriculture in English. The main purpose of this thesis then was to connect the empirical data I gathered in Kherson to landscape and political ecology perspectives in order to develop and explore a research problem dealing with Ukrainian agricultural continuity and change from a geographic perspective. The main conclusion is that a landscape perspective has much to contribute with respect to the debate on Ukrainian agriculture. Specifically, conceiving of the agricultural landscape as landesque capital – long-term land improvements tied to specific agricultural knowledge systems and organizational forms – helps to understand how a heavily capitalized landscape can exert an inertial impact on future developments, thereby (re)producing continuity.

Keywords: Land Reform, Ukraine, Landscape, Land Use, Agriculture.
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Introduction

In the 1990s, the post-Soviet republic of Ukraine launched land reforms, which, in a series of separate but increasingly ambitious phases, broke up the large collective and state farms that were the hallmark of Soviet agriculture, and distributed the land to former farm workers. The intention was to transform Ukraine’s agricultural sector along more western lines, meaning that agriculture would henceforth be run by family farms or larger corporate farms on privately owned land. Securing adequate agricultural output had always been a problem in the Soviet Union, so reform proponents hoped that, freed of the constraints and inefficiencies of the Soviet central planning system, newly private farms, with secure title or access to land, would be able to invest in their farms, and thereby harness Ukraine’s tremendous natural agricultural potential to boost agricultural productivity and output.

Much has changed – the collective farms are indeed gone, there are over 50,000 family farms in Ukraine today farming over 3.5 million hectares (Lerman et al 2007, 28), and agricultural productivity in recent years has increased. Nevertheless, elements of Soviet era agriculture and Soviet rural life persist, and many reform advocates would admit that the expectations of the reformers have not been fully realized. While there has been a steady increase in the number of private farmers and the area they farm, 3.5 million hectares is only 8 % of the total agricultural area of Ukraine, and many are ultimately disappointed that there are not more private farmers (Petrick and Carter 2007; Lerman et al 2007; Demyanenko 2005). In the meantime, large-scale agriculture persists. In many cases, these operations are conducted by organizations that are the direct successors to the collective or state farms they replaced, on the same land (though some successor farm organizations have shrunk or grown), using the same methods and with the same machinery base. Plus, agricultural productivity, though much improved since the crisis years of the 1990s, still remains below (in some cases far below) European and North American levels. The result of the land reforms in other words is a mix of continuity and change.

While there have been a number of studies, from a variety of different philosophical and political/policy perspectives, concerning post-independence Ukrainian land reform and farm reorganization, the dominant voices – in English in any case – have been attached in some way, shape or form to international aid agencies providing concrete assistance to and advocating for land privatization and agricultural liberalization. This mostly concerns agricultural analyses produced by the World Bank – by far the most prolific organization with respect to monitoring Ukrainian agriculture – the Food and Agricultural Organization (FAO), and the U.S. Agency for International Development (USAID) (see Lerman et al 1994, 2002, 2007; World Bank 2004; Rolfes 2003; Roth and Valetta 2006; Demyanenko 2005; Meyers 2005). My purpose in noting this is not to discredit this literature by highlighting the stake of these different organizations in the outcome, especially as I use these sources myself in the present analysis, but to point out what the main research focus is of these reports, which is to monitor and provide updates on

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1 Here I should report, in the interests of full disclosure that I used to work for USAID, though never in Ukraine.
developments in Ukrainian agriculture and describe the trends. This has entailed both analyzing statistics on production, crop-yields, farm employment, and land ownership, among other data, as well as periodic surveys and questionnaires of family farms and farm enterprises.

Distinct from this, but involving some of the same names, is a more academic focused discussion, which places Ukraine in a broader post-Soviet and post-socialist context. There are various threads to this literature. One thread uses land reform and security of tenure as a benchmark for measuring agricultural productivity increases among socialist and post-socialist countries. The main argument is that while land reform has contributed to recent productivity increases in Ukrainian agriculture, the failure to completely liberalize land relations and agriculture and secure tenure is preventing even greater potential increases (Lerman 2008; Scott and Swinnen 2004). Others take up the question of large-scale agriculture versus private farming more directly, and argue that the current institutional and legal milieu is responsible for the persistence of large-scale agriculture and the relative lack of enthusiasm for private farming (Koestler 2005; Valletta and Nosick 2002). Still others implicate farm managers themselves, arguing that they seek to “keep horizons of workers limited by sheltering them from pro-reform influences” (Petrick and Carter 2007). In contrast, an anthropological approach posits that the continuity of large-scale agriculture and the reluctance of many to become family farmers represents the continuation of a late-Soviet, rural moral economy which continues to be viewed positively both by (former) collective farm managers and by rural residents (Hann 2003; Kaneef 2003; Ash 1998). An intriguing blend of some of these arguments can be found in Allina-Pisano (2004), who argues that regional and local policy elites and bureaucrats deliberately, albeit not fully openly, worked to limit the effect of the land reform because they felt that preserving the existing system of large-scale agriculture was simply the best policy for ensuring food security.

Almost completely absent from this discussion, however, are geographers, at least human geographers publishing research in English. While Ukrainian economic geographers have published studies on agriculture, the study of landscape from a human geography perspective is not pursued in Ukraine. In other words, while physical geographers and ecologists have provided some insight into landscape change in Ukraine, particularly with respect to land abandonment and afforestation in western Ukraine or the decreasing effectiveness of the irrigation system in the Crimea (see Kuemmerle et al 2006; Kuemmerle 2007; Pavlov et al 2006), and there have been a number of human geography treatments of the landscape in eastern and central Europe and Russia (Born and Blacksell 2002; Palang et al 2006, 2004; Unwin 1999, 1997; Vogeler 1996), there is a dearth of studies examining Ukraine’s cultural landscape (in Ukrainian and English). This seems such a strange omission given the fact that the relationship between land reform and changing land relations, on the one hand, and agricultural and the rural landscape, on the other, are a prominent research focus within landscape studies, and Ukraine’s land reform has, in the last decade, been both one of the world’s most extensive, involving some 30 million hectares of land – some of Europe’s most fertile – transferred to nearly seven million rural residents in Ukraine.
Aim

The basic aim of this thesis then is to see how and in which ways a landscape perspective can help understand land reform in Ukraine, and the observed change and continuity with respect to farm structure. More specifically, I seek to explore if and how the land reform has affected the agricultural landscape in the southern Ukrainian oblast of Kherson (See Figures 1 and 2). As mentioned, little research has been conducted with respect to Ukraine’s landscape, so my project is exploratory in nature. I want to explore and contribute to the development of a research problem relating to land reform and landscape change in former Soviet and socialist countries.

The order of the questions that this thesis will pose and attempt to answer reflect the organization of this thesis. The following questions will be dealt with in the Results section below:

- What are the forms and other principal features of the agricultural landscape in Kherson?
- Who farms in Kherson today?
- How do farmers acquire land?
- How is agricultural land use changing in Kherson?

I will then relate the answers to these questions to theoretical perspectives on landscape (to be discussed below) in order to develop more specific research questions relating to Ukraine’s post-Soviet landscape. In other words, this is an exploratory attempt to link initial empirical observations from a little-researched landscape to theory to be able to aid future research of this area and perhaps draw useful comparisons with others parts of the world. Finally, though the primary aim is to begin to understand the roll of the landscape in Ukraine’s land reform, this study will also provide a survey of
agriculture in Kherson today, contributing to an update to the monitoring literature described above.

**Method, Data Collection, Sources of Error**

**Interviews**

This thesis is the result of a field study conducted in Kherson from 16 March to 30 April 2009. I conducted a series of interviews while in Kherson with a variety of different farmers (12 interviews), agricultural officials (five interviews), and a miscellaneous category including an agronomist, a property lawyer and a former state farm official (three interviews). These were semi-structured interviews, resulting in free-flowing conversations during which I asked farmers about the history of their farm, their own career in farming, how they acquire land, and which crops they cultivate and why. Agricultural officials and land owners were questioned about the various stages of the Ukrainian land reform, particularly the most recent stage which provided for the division of the land of collective farms and the distribution of plots in nature to former collective farm workers. It is important to note that, though their farms were of different sizes – from eight hectares to 9,000 hectares – most of the farmers I spoke with were engaged in commercial farming (even the one state farm I visited was primarily engaged in commercial farming). I only spoke with one farmer who practices what is called subsidiary or subsistence agriculture. This is an important distinction to make since, as of 2007, 52.2 % of Kherson agricultural land was used in commercial farming while 47.8 % was used for subsidiary or subsistence production (Kherson State Statistical Committees 2008, 17).

The reason I chose to do interviews, as opposed to questionnaires, is that I wanted longer responses from interviewees concerning the history of their farms, and the nuances of acquiring land. A lot of this activity occurs in a grey-market, and it is likely that a questionnaire would not have captured this information. Also, my experience conducting these interviews showed me that reality is more ambiguous and diverse then the neat categories displayed in statistical yearbooks. I might have missed some of this ambiguity and diversity had I used questionnaires instead of interviews. Interviewees were selected opportunistically, based on (so to say) the contacts of my initial contacts at Kherson State University, the Kherson State Agricultural Institute, the local office of an international organization, and my initial contacts in the old Swedish colony in Kherson. Since I was new to the region, I had no choice but to avail myself of these initial gatekeepers. This is what Cloke et al (2004, 156) would refer to “working with what you can get.” One effect of this is that I was led to more successful farmers, whether from large operations or family farms. To try to counter this, I asked some interviewees to suggest or aid in the contacting of other potential interviewees, for a snowball effect. This did lead to an interview with a less successful farmer, which provided an interesting perspective. I also casted a wide net in trying to find land users and land operators who would be interesting to talk to, which is one reason for the geographical diffusion of respondents. Still, being led by gatekeepers to more successful farmers has to be acknowledged as a potential source of error.

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2 I spent additional time in the Ukrainian capital of Kiev.
Concerning other possible sources of error, none of the interviews were recorded, for fear that a recording device would inhibit honest discussion of land practices, particularly because, as mentioned, I was interested in some of the land practices and deals that happen informally or in the shadows. This means that I am not able to benefit from going back to recordings or looking at transcriptions of the interviews. I did however take copious notes throughout the interviews, and after the interview these notes were immediately typed up into individual accounts of each interview. Though I am proficient in Russian, I used a translator for all interviews but one. Roughly half of the interviewees spoke Russian, and I was therefore able to verify that I was getting good translation, while the translator afforded me the chance to take down proper notes. The other interviewees spoke either Ukrainian or a mix of Russian and Ukrainian that was difficult for me to understand. Here the translator was essential. While I had the utmost confidence in the two people who translated for me, something is usually lost in translation, and this has to be acknowledged as a potential source of error.

**Other Data**

I received statistics on land ownership and use from the Kherson State Committee on Land Resources (hereafter SCLR) and the Kherson branch of the State Statistical Committee (hereafter SSC). These statistics will be used to describe recent trends in ownership and land use. The statistical information that I have gathered is extensive numbering over 500 pages of data, mostly concerning the period 2005 to 2009, but also including information from the period 1990 to 2005. Despite the comprehensiveness of these statistics, I have to note that production in all branches including agriculture was generally exaggerated in the Soviet period to show conformity with strict and (perhaps too) ambitious production plans, while in the post-Soviet era, the reverse tends to be the case, especially as figures today rely on self-reporting. Thus today there is probably more production that what is reported in statistics, the reason being that producers and land users wish to lessen their tax burden and keep the state away. That being said, there are no other statistics to use other than these official statistics, which are used and referred to in most reports on Ukrainian agriculture. Though this is of course a potential source of error, I address this question directly in my analysis, taking up discrepancies between official statistics and the reality on the ground.

Most interviews were conducted in the interviewees’ home or office. However, four interviews were conducted out on the fields. This combined with other trips I made out to rural areas means that the landscape perspective I seek to advance in this thesis is not just based on descriptions from others, but on my own experiences and observations traveling in and walking around Kherson’s rural landscape. Also, another source of information on the landscape consists of Soviet era topographical maps and satellite images, which will be used for visualization purposes. This analysis is not a remote sensing or GIS analysis, though occasional reference will be made to relevant remote sensing research.

**Note on Language**

Beyond questions of landscape, language is a contested topic in Ukraine. The Ukrainian authorities are encouraging the use of Ukrainian, and all official government documents
are now in Ukrainian, as are all advertisements and Ukrainian TV programs. However, a great part of the population – well beyond the proportion of the population that is actually ethnically Russian – still speaks Russian on a daily basis. In fact a general observation is that in any city in central, southern or eastern Ukraine, including Kherson, one is likely to be addressed in Russian and not Ukrainian though there are of course exceptions. Outside the cities the language situation is different. One is far more likely to find people who either speak pure Ukrainian or speak a local variant of a Ukrainian-Russian dialect called Srdzhk. For the purposes of this thesis, all places will be referred to by their Ukrainian name, e.g. Dnipro River and not Dniepr, which is the Russian name. One exception will be made, which is the Russian word for collective farm, kolkhoz. All respondents I spoke with used the word kolkhoz instead of the Ukrainian word which is kolhosp (kollektivna hospodarka).

Ukrainian Land Reform: Its History and Current Status

Land reform is a broad concept with diverse manifestations. Historically, it has involved consolidation of land under fewer owners or users, even under one owner – the state – as in socialist collectivization. Outside of socialist countries, however, land reform has tended, since the Second World War, to involve redistributing land to many owners/users, or at least strengthening the tenure of small-holders in various ways, though the geographic varieties and different degrees of real ambition and success are endless. Since the collapse of the Soviet Union, there has been a so-called “third wave” of land reform (Wegren 2005, xiii) in the Soviet successor states, which has renewed interest in the issue of land reform. The reform efforts in the former Soviet space have all been similar in that they have been presented with the same questions: what to do with what were for the most part inefficient state and collective farms and what rights should farm workers and other rural residents have to the land. In other words, what makes this wave of land reform distinct from other post war reforms is that it has involved deciding who has rights to enormous tracts of land – in Ukraine’s case, very fertile land – and, importantly, it has generally gone hand in hand with some form of farm restructuring. In this section, I will review the basic tenets of Ukrainian land reform – how Ukraine has addressed these two questions – and explain needed terminology.

Land Reform Stages

To understand the land relations and farm structure that reforms have led to, it is necessary to understand the starting point – the collectivized agriculture inherited by independent Ukraine. In Soviet agriculture, the state owned all land, and most agriculture, in terms of area, was conducted on collective farms (kollektivnoe khozaistvo or kolkhoz) or state farms (in Russian: sovetskoe khozaistvo or sovkhoz; in Ukrainian: sovhosp). There were genuine differences between state and collective farms; state farms were bigger, somewhat more specialized, fewer in number, and workers had better conditions than on collective farms (See Symons 1972, 141). However, in the grand scheme of things kolkhozi and sovkhozi were much more similar than they were dissimilar. Thus, both kolkhozi and sovkhozi practiced large-scale, mechanized agriculture, with extensive

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3 One example of the better conditions on State farms was that until the 1960s, collective farm workers did not receive a salary, and instead received in kind payments. Workers on state farms, on the other hand, received a salary.
use of heavily subsidized chemical fertilizers and plant protection. Both possessed large labor forces, with attendant and costly problems in maintaining labor discipline. Both maintained an extensive social infrastructure of schools, clinics, cultural centers, etc… that provided various essential services for farm workers and their families. Finally, both also allowed workers to maintain household plots for small-scale agricultural production though the size of plots, amount of time one was allowed to work on the plots, and marketing channels were strictly regulated. It is not for nothing that most respondents in my study say, when talking about the farm they used to work on, “kolkhoz” even if it was a state farm.

Though small in area, household agriculture contributed significantly to overall Soviet agricultural production. For example, during the 1980s household agriculture contributed roughly 25%, and at times more, to total production in Soviet Ukraine (Lerman et al 1994, 26). Such household production was common throughout the Soviet Union. According to Medvedev (1987, 224-226, 361-383), citing Soviet wide data, much of this private production focused on potatoes, vegetables and dairy products (Medvedev 1987). Though this bimodal production pattern – combining large-scale farms and very small-scale household plots – has been criticized as “big tractors and many hoes,” (cited in Hayami and Ruttan 1971, 180) ultimately, household production came to be seen as an adaptive response on the part of the Soviet regime to a problem that vexed the Soviet Union throughout its existence: feeding a growing population. It is perhaps easy today, with the benefit of hindsight, to argue that collectivized agriculture was increasingly part of the problem, but one should remain cognizant of that fact that the Soviet Union, though blessed with some fertile land, generally experienced unfavorable agricultural conditions, especially compared to Western Europe and North America. Given the short growing season and the unpredictable weather, feeding the population of the Soviet Union would have been difficult however farms were organized (see Symons 1972, 95-96).

Ukraine initially proceeded very slowly with land reforms and farm restructuring. In this regard Ukraine initially followed a reform path closer to Russian and Belarus – the latter still have collective farms to this day – and not the more ambitious reform path of former socialist countries to the west of Ukraine. There was considerable resistance within the agricultural establishment, particularly among state and collective farm chairmen, who were powerful local figures with allegiances in local administrations. Also, most farm workers, it has to be said, were ambivalent at best at the prospect of land reform, and many wanted the system to continue as it was (Ash 2005, 78). Small steps were taken first. In the early 1990s, private ownership of land was first allowed and people gained title to their household plots, which were allowed to be larger. Also family farming first became possible, as did leasing land. Few became family farmers at first. This started to change when a land reserve was created from roughly 15% of collective and state farm land, and put under local government control. The primary purpose of the land reserve was to give household plots to non-farm, rural residents and to give registered family farmers the possibility to acquire up to 50 hectares of land in life-time, inheritable leases. It is no longer possible for farmers to permanently acquire land from the land reserve, though they can still lease land from the land reserve in shorter term contracts, and they
have been able to convert the life-time leases they received earlier into private ownership. Also rural residents can still apply to receive from the land reserve smaller plots for household or subsidiary agriculture. Later, in 1994-1995 most state farms and all collective farms were induced to reorganize into so-called collective farm enterprises (CAE). Hand in hand with this reorganization, farm workers received land share certificates, which entitled them to a share of farm land that was defined as to size and value (equal to what other farm members received), but not defined in nature, i.e. as a demarcated plot of land. CAEs were to pay rent to land share holders, who, if they wanted, had the notional right to exchange their share for a physical plot of land which they would hold in private ownership. Again, few took this option. Indeed several observers have noted that many land shares never left the farm manager’s office (Valletta and Nosick 2002, 9; Demyanenko 2005, 46). In the late 1990s, the dominant view of most observers was that little had in fact changed on the farm, except for “changing the sign at the door” (World Bank 2004, 83).

The decisive step in land reform came in 1999, with a presidential decree on land reform which was later consolidated and encoded in the Land Code of 2001. While some ambiguity appears to have been written into the text of the 1999 decree (see Allina-Pisano 2004, 566-567), the 1999 decree mandated that all land shares be converted into land title certificates (called state acts) to specific, demarcated plots of land, which are called pai in both Russian and Ukrainian. Simultaneously, CAEs were made to convert to any of a number of private business forms. With the stroke of a pen, collective farms disappeared, and several years later – after a donor supported process of surveying and platting out land plots – Ukraine’s agricultural land was in the private possession of roughly seven million rural residents with the average plot size, for all of Ukraine being 4.2 hectares (Lerman et al 2007, 22). This decisive stage of land reform came, however, with some important caveats, mostly in the form of restrictions on the land market. Most significant was a moratorium on agricultural land sales. Initially intended to last until 2003, this moratorium remains in effect today though the IMF in recent negotiations on a crisis package has demanded that it be lifted. Also foreigners are not allowed to own agricultural land. Nor can corporations or other business entities own agricultural land; when the moratorium on land sales is lifted, Ukrainian corporations will gain the right to own agricultural land, though the exclusion of foreign agricultural land ownership will remain. The maximum amount of land that a individual can own is 100 hectares, though there is no limit to the amount of land a person or a business entity (even a foreign entity) may lease in. Finally, Soviet era land use designations remained largely in force, i.e. land designated as agricultural land must be used for agricultural purposes. This means, for example, that one is not allowed to build a house on agricultural land. Maintaining and enforcing these designations is the State Committee on Land Resources (SCLR), which is a government body created in the 1990s, which, among other things, maintains the land cadastre. In general, the SCLR was also given extensive powers to regulate the land market, and is a third party in all land transactions, the purpose being, among other things, to ensure lease agreements are reasonably priced (Nosick and Valletta 2002, 16). Thus the SCLR has developed a non-market based system for determining the value of agricultural land, based on soil fertility and other factors. One reason these restrictions were put in place and the state was given a large role in the land market is because of
wide-spread fears, and not just among those who were opposed to land reform, that speculators would drive up the price of land, trick land owners into handing over their land, and thereby acquire enormous holdings of land in private ownership (Demyanenko 2005, 47).

The stated purpose of most land reforms is optimization of agriculture, and improving conditions in the country-side, though such purposes are defined differently and pursued with varying degrees of fidelity to stated ambitions and principles. While such purposes also informed the Ukrainian land reform of the 1990s, it is still important to give a more specific account of what Ukrainian reformers and their donor partners hoped for with land reform and farm restructuring. One purpose was indeed making agricultural more efficient, by stripping collective farms of their social obligations and allowing them to pare down their work forces, turning them into “normal” businesses. Also, among agricultural specialists and economists, it is held as axiomatic that smaller farms are more efficient and more sustainable than larger farms (Johnson 1994; Hanstad 1998; Prosterman and Hanstad 2003; Demyanenko 2005; Valentinov and Nedoborovsky 2005; Lerman et al 2007), and so there was hope that the new category of private family farmers would grow and become a significant element in Ukrainian production. A second main purpose was to boost rural livelihoods. In the 1990s, farms were shedding staff and/or not paying salaries, there was rising unemployment in the cities and hyperinflation in the economy and thus doubt about the value of the currency. Thus expanding possibilities for subsidiary agriculture by enlarging the amount of land that could be owned and used for such purposes – which are not taxed in Ukraine – gave people a real asset that they could use to weather the economic crisis. As Valletta and Nosick report (2002, 6) the provision of household plots was popular in Ukraine, and final stage of land reform has further increased possibilities for pursuing subsistence or subsidiary agriculture. Finally, a great many of the beneficiaries of the distribution of collective farm land were pensioners or soon would retire. As one of the respondents in my study said: “grandma and grandpa own our land.” Pensions in Ukraine are low and not close to being able to provide adequate support. Reformers hoped that pensioners would receive a supplemental income from leasing out their land (Demyanenko 2005, 47; Roth and Valletta 2006, 45).

Since the implementation of the latest round of land reform from 1999 to 2003, there have been no new major reforms, and the farm structure today in Ukraine is as follows:

- Corporate Farms. There are a range of different types of corporate farms from joint stock companies, and limited liability corporatons to partnerships and cooperatives. The joint stock company is the most popular option for this category. Such farm enterprises may not own land, though they can lease it. And lease they do, as the average size of a corporate farm, according to a recent survey, is roughly 1700 hectares (See Lerman et al 2007, 151). According to the same survey, most corporate farms are reorganized collective farms (Ibid, 48). Another telling statistic is that, as of 2004-05, many farm corporations have few shareholders, which is an indication that former managers have taken over (World
There are roughly 17,000 private farm enterprises in Ukraine today.

- **State Farms.** There remain a handful of state farms scattered around Ukraine – 386 as of 2005 (Lerman 2007, 20). This is down from 2438 in 1990. One purpose of these farms is to serve as experimental farms, though many also produce on a commercial basis.

- **Family Farms.** This is a new category of farms, that has been growing though at a slower rate in recent years. There are some 50,000 family farms in Ukraine today (Ukraine State Statistical Committee). Family farms are legal entities, meaning that, as of the 2003 Law on Family Farms, one has to register to be a family farmer, though not all have done this. In contrast to corporate farms, family farms are allowed to own land (up to 100 hectares). The average size of a family farm in Ukraine is roughly 80 hectares, which has been growing since the 1990s (Lerman et al 2007, 28). Generally, family farmers own only a small portion of their farms, leasing in the rest.

- **Subsidiary Agriculture.** Subsidiary agriculture in Ukraine today represents an evolution from the household plots allowed on collective farms during the Soviet period. Land in household plots are owned, and rural residents who do not already have household plots have an entitlement to receive one. A farmer practicing subsidiary agriculture does not have to register as a legal entity and does not pay tax on production. The primary purpose of subsidiary agriculture is subsistence, but surplus production is sold. The maximum size allowed for a household plot is 10 hectares, but the average household plot is 2.5 hectares. (Lerman 2007, 26)

As significant as land reform is in Ukraine, other agricultural reforms should also be mentioned. Most significantly the state gradually closed down state marketing and input supply channels, removed input price supports, liberalized prices and otherwise withdrew most of its extensive subsidies for agriculture. The result was that food prices dropped and input prices increased, thereby dramatically lowering terms of trade for farms. One estimate for the entire European portion of the former Soviet Union is that agricultural terms of trade decreased by 70% (Rozelle and Swinnen 2004, 420). This, plus the general crisis throughout the economy which lowered demand, particularly for meat products, contributed to a 51% decline in agricultural output between 1990 and 1999 (World Bank 2004, 1; See also Gorton et al 2002). A great many farms went into debt and could not pay suppliers and workers. Only in the last several years has agricultural production of permanent crops began to come close to the levels in 1990, while livestock production remains lower than Soviet levels. Some subsidies do remain for grains, fruit and wine

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4 In Ukrainian, a family farmer is called a фермер / fermer. Scholars use various terms to translate this, including “peasant farmer,” “individual farmer,” or “private farmer.” (In Swedish one says enskilde bonde). Though those who say “peasant farmer” certainly intend no disrespect, I have opted to say family farmer to avoid the negative connotations sometimes associated with the word “peasant.”

5 This statistic was taken from the State Statistical Committee web-site: http://www.ukrstat.gov.ua/
production and other areas, though subsidies for grain vary from year to year depending,
at least partially, on harvest conditions. The government has also slowly reduced
international trade restrictions, though agricultural import tariffs remain relatively high
by world standards, and temporary export restrictions are placed on grain when, as in
2005, there are fears of a grain shortage. Two general themes about government
agricultural policy are that, while there has been a clear trend towards liberalization, the
government continues to intervene in markets, albeit somewhat erratically (Meyers 2005,
Second, a concern for high food prices and domestic industry seems to trump
corns for farm conditions.

Reasons for Observed Continuity
The number of family farms continues to increase, and, as of 1 January 2009, stands at
50,000 for all of Ukraine. Growth, however, has come in spurts, first after it was possible
to get land from the land reserve (early 1990s), and then after the land lease market
opened up (in 1999) following the final and decisive stage of land reform (See Lerman et
all 2007, 49). Growth in the number of family farms now has slowed Ukraine-wide, and
in Kherson the number of family farmers has been decreasing since 2002, though the
average size of family farms in Kherson continues to increase. In any case, reform
proponents remained disappointed that more people have not opted to withdraw their land
from larger-scale farm enterprises and strike out on their own to become family farmers.
Several different explanations have been put forward that explain the lower than expected
popularity of the family farming option. One common argument is that there is not
enough tenure security for family farmers to take a long-term perspective and invest in
their farms. This argument has many different strands. One strand relates to the overall
institutional milieu, meaning that contracts enforcement is weak and markets are as yet
non-transparent raising information costs (Koestler 2005, 110; Nosick and Valletta 2002,
24; Roth and Valletta 2006, 16-17, 46, 50). Also, the cost in time and money in
conducting land transactions – formulating and registering lease contracts – is high, and
in some places corrupt. In such an environment, the heft of the larger operators and the
contacts that managers at corporate farms have give them an advantage. Beyond these
structural reasons, active or passive resistance on the part of local agricultural officials to
family farming has been cited as a reason for the slow or stagnated growth in family
farming (Ash 1998, 65, 73; Nosick and Valetta 2002, 8; Aliina-Pisano 2004, 577; Rozelle
and Swinnon 2004, 431). Many of the respondents in my study referred to such
resistance, particularly when they first became family farmers in the 1990s. They said
officials participated in this resistance, but so did other villagers, who also saw the
emergence of family farming as a threat. Another reason that family farming has not
emerged is that private credit institutions almost completely ignore family farmers, and
there is little state support or extension service for family farmers (World Bank 2004, 92,
94). The lack of credit can make it hard to raise capital and/or acquire machinery more
suited to smaller-scale farming. It should be said however that the lack of access to credit,
in these crisis years, has turned out to be a boon for many smaller scale farmers in
Ukraine, since many have little or no debts (See for example USDA 2009).

Another argument that has been put forward to explain the less than anticipated
popularity of family farming is the supposed conservatism of risk averse “peasants” the
world over, with one study (Petrick and Carter 2007) arguing that collective farm managers seek to exploit this conservatism and prevent them from opting for family farming. A more benign interpretation is that agricultural continuities can be seen as a continuation of a Soviet village moral economy which village residents and farm managers both view positively and participate in (Ash 1998; Hann 2003). As Ash writes (1998, 78): “under the Soviet system farm workers received not only material benefits, but also social security, a sense of community and various social services. Within the present context, farm workers on large farms continue to feel safe …” Allina-Pisano (2004) describes local agricultural officials in Kharkhov (eastern Ukraine) as being particularly concerned about the social role of collective farms, and that is one reason why they were reluctant to break up the farms, as instructed by superiors in Kiev.

Another variable which speaks to the relative unpopularity of family farming is that the expected productivity superiority on the part of family farms relative to large-scale entities has not materialized. In the meantime, corporate farm entities have generally returned to profitability, since 2000, though there is considerable variation. According to theory, smaller farms are more efficient than larger farms. The main reason for this is that larger farms have what are called higher governance transactional costs monitoring labor. Because labor is not in one place where they can be more easily monitored, but instead, due to the nature of agricultural work, spread out over far-flung fields, it is harder to monitor and ensure labor discipline. (Koestler 2005; Valentinov and Bedoborosky 2005; Johnson and Ruttan 1994). Add in collective farming’s lack of labor incentives, and the very real possibility that the weather would prevent a good harvest anyway, and you have one of the standard explanations for why large-scale, Soviet collective farming was so unsuccessful. In theory, family farms do not have to worry so much about the higher transactional costs in monitoring labor, since family based labor presumably has a strong incentive to perform.

Be that as it may, in Ukraine as a whole, according to one study (Lerman et al 2007, 112-114), family farms and large-scale farms were about equally productive in terms of crop yields in a range of different crops. Crop yield data from 2008 from Kherson, on the other hand, indicate that corporate farms are more productive than family farms. The same Ukraine wide study indicated higher crop yields for subsidiary agriculture than both corporate and family farms, though with lower confidence, while data from Kherson indicate that subsidiary agriculture is, in general, either as productive or more productive than family farms and as productive or less productive than corporate farms, with some exceptions.

A Landscape Perspective

I believe that a landscape perspective can help illuminate and better understand continuity and change with respect to Ukrainian agriculture and farm structure. To say that naturally requires a definition of “landscape,” since there are many different ways of seeing or understanding landscape. Until recently, the debate has been between dominating Anglo-American post-modernist representational views of landscape – that landscape is a matter of perception, discourse and/or ideology – against more traditional morphological views that focus on or categorize the landscape’s physical or material features, and seek to link
those to tenure systems or concrete land use practices or technology that might leave an imprint in the landscape. A new morphological school however collapses what was probably always a false dichotomy, declaring that there is a dialectical relationship, albeit not always unambiguous, between material features of the landscapes and dominating discourses and/or broad political-economic processes. Landscape then is, to use art historian W.J.T. Mitchell’s pithy phrase: “site and sight” (cited in Mitchell, D. 1996, 31; Blomley 1998, 574).

**Political Ecology**

To a certain degree, in emphasizing feedback loops between material forms in the landscape and discourses and processes creating the landscape, this new morphological school can be seen as a revitalization of a classic political ecology from the 1980s, that sought to link physical manifestations of environmental change or land degradation to larger political-economic or social processes (Blakie 1985; Blakie and Brookfield 1987; see also Mitchell 2003, 792). This kind of political ecology does more than assess the material or environmental effects of certain policies, reforms or political-economic processes. It also helps to map out and understand how, in Alf Hornborg’s words (2007, 1): “humanity is not a single ‘we’ but deeply divided in terms of reaping the benefits versus carrying the burdens of development.” Power relations in the countryside are key to understanding these distributions of development, and study after study has shown how, in term of agricultural development in developing countries, the distribution of burdens and benefits often involves small-holders or producers or farm workers shouldering a disproportionate share of the burdens, while well connected, large-scale operators reap the benefits. To a certain degree then political ecology is concerned with mapping the material or physical effects of this distribution of development burdens and benefits. This distribution of benefits and burdens and how it can contribute to continuity is what I want to comprehend in Ukrainian agricultural reform.

**Field Systems, Property Relations and Continuity**

The study of field systems offers another vector for comprehending the role of landscape in post-socialist agricultural continuities. There has not been much written specifically on post-socialist field systems, particularly regarding Ukraine. However, in those studies that have directly or indirectly touched on post-socialist field layout, it has often been observed that the collective farm field pattern of large fields has persisted despite radical changes in farm structure, and land ownership (Vogeler 1996; Born and Blacksell 2002; Kummerle 2008). This is even the case in Estonia where there is a powerful landscape ideal emphasizing small-holders (Unwin 1999, 118). However, there are cases of land reform in Eastern Europe leading to apparent field fragmentation – Albania for example (See Sabates-Wheeler 2002; Muller and Munroe 2008). As far as Ukraine is concerned, Lerman et al’s survey of 1,370 farmers across Ukraine (2007, 45, 69) reported little field fragmentation, while Kummerle (2008), using remote sensing methods, reported some fragmentation in more marginal highland farming areas in western Ukraine, while low-lying land retains the collective farm field layout. Kummerle’s observation squares with my own in southern Ukraine (to be discussed below), where there has been some field fragmentation here and there, but the persistence of large-scale farming has meant that that the collective farm landscape of large fields has been preserved in many places.
Vogeler (1996, 455), one of the few to specifically study changes in field pattern and layout following post-communist land reform, considers it ironic that “the private ownership of land [in Eastern Germany] has reinforced the landscape consequences of collectivization.” While one can certainly appreciate the irony of a socialist landscape turning out to be a perfect fit for contemporary capitalism, studies of field systems from other regions of the world and other historical periods suggest however that the persistence of field patterns beyond the specific culture or agricultural system that created them is not necessarily so strange. The agricultural landscapes in parts of the United States for example still bear the unmistakable imprint of the original federal survey – from 175 to 200 years ago depending on the location – of land, which divided land into various sized squares to facilitate settlement (See Hart 1998, Johnson 1976). While one can argue that the United States in 200 years has not undergone such wrenching or abrupt changes as in Eastern Europe, there have nevertheless been changes, from the advent of modern planning to significant changes in agriculture, not least the mechanization and industrialization of agriculture and introduction of conservation measures. Another example, again rather far removed from present-day post-socialist landscapes is from ancient and medieval Europe, where research is showing that coaxial fields – or broadstrip fields – which scholars earlier believed were by and large connected to a system of land access governed by custom and kinship, have actually been used under a variety of land access systems (Widgren 2006, 60). As Widgren’s writes (ibid): “the evidence of ancient fields thus shows us that not only territorial thinking, but also straight, large scale and physically well-demarcated boundaries have a long history. We can only hypothesize about the exact relation of individual and collective rights in such a system.”

So, the persistence or adaptability of certain field patterns or other landscape formations in relation to different and/or changing social, cultural, legal and political contexts is not so strange, but the question then becomes how does the landscape relate to culture or society in a time of change? Blomley (2007) who studied the role of the landscape in the enclosure movement in the United Kingdom during the 16th and 17th centuries offers some clues. At first glance it would seem that Blomley’s treatment would not be relevant, since he is analyzing a case of landscape change, and not persistence. However, his problematization of the relationship between physical forms in the landscape – in this case, hedges as a “new” marking for field or property boundaries – and a broader social context finds a complicated (and complicating) dialectic relationship between the two. The planting of the hedges (and thus the establishment of a key characteristic of the English countryside for generations) was not the outcome of the enclosure process, but a part of it. Hedges, which, according to Blomley (ibid, 6) had actually been used in some areas before the enclosure movement as field and other kinds of boundaries – there is perhaps an element of persistence here after all – were planted in advance of, and indeed to influence, the legal system and popular notions of private property. They were, in other words, planted as much to “prevent the forms of physical movement associated with the communing economy,” as to “concretize a new set of controversial discourses around land and property rights” (ibid, 5). One conclusion from this is that “things or space matter,” in that material forms in the landscape play a role in social and cultural change,
but they do so in complicated, ambiguous ways. As Johnson writes (1996, 16-17), also about the enclosure movement: “spaces and objects take on cultural meanings and relate to human action and perception in very different ways in different historical periods” (see also Widgren 2006, 57). Reading the landscape to reveal underlying social structures and power relations in society is possible, but not easy, and there is no template with which to match particular landscape formations or field patterns with particular property regimes, societies or cultures.

If understanding the role of the material landscape can be complicated and ambiguous, so can understanding the broader cultural and social context. One can argue that this is particularly the case for the cultural and social context for the rural landscape of contemporary Eastern Europe. As noted by Palaang et al (2004, 2006) the rural landscape in Eastern Europe has many “layers” all of relatively modern origin. Palang et al employ Cosgrove’s concept of “social formations,” by which is meant different socio-economic and political systems with different views on how the landscape should be conceived, used and accessed, leaving – depending on those views, how they are implemented and in negotiation with the natural conditions of the place (see Palaang et al 2004, 105; Cosgrove 1984, 40) – different imprints on the landscape. In contrast to Western Europe, where landscape change has tended to be more gradual and incremental, they argue that Eastern Europe is unique in that within a relatively short period of time different social formations have left different imprints on the landscape, often under violent (e.g. forced collectivization) or at least “abrupt” circumstances, and these imprints are now all jumbled together. The result is that today, after another such wrenching change – from communism to European-oriented capitalism – many are confused about how the landscape should be viewed and used.

Given all this ambiguity, how should one proceed in reading Ukraine’s landscape? Inherent in Blomley’s approach to understanding the enclosure movement and explicit in Johnson’s treatment of the same subject is the need for a thorough understanding of the previous system – in this case the open-field / common field system – in its own terms (see Johnson 1996, 62). This echoes Widgren’s (2006, 58) call for a “contextually and relationally informed landscape studies.” A question that would arise from Palaang et al is which layer does one begin with in Ukraine? In Ukraine’s case, this would entail a thorough understanding of the collective farm landscape, its physical features and forms, why and how these forms were created and maintained, and what these forms came to mean within a Soviet cultural and scientific context, with a particular emphasis on the period of “mature socialism” (i.e. the late 1960s and 1970s) and the period just before the collapse of the Soviet Union (the 1980s). Such an approach would thus not entail indulging the Soviet philosophy behind forced collectivization, and Soviet justifications for the resulting violence and mass starvation, but rather accepting that by the 1960s and 1970s the collective farm landscape had become a reality for millions of Ukrainians (and other Soviet citizens), a reality that had many positive aspects for many farm workers. In understanding how the landscape was formed, one can proceed through time to see how various elements of the landscape or field system, have or have not acquired new meanings and purposes, as reforms are launched and outside forces begin to wield influence.
Landesque Capital and Landscape Inertia
The question still remains however with respect to how specific landscapes or field patterns adapt from one context to another. One concept that I believe can shed light on this is “landesque capital,” which is defined as “any investment in land with an anticipated life well beyond that of the present crop, or crop cycle” (Blakie and Brookfield 1987, 9; see also Widgren 2007, 61). Clearing land and creating fields can be seen as such a land improvement, but landesque capital is also used in reference to larger-scale land improvement projects, such as the terracing or irrigation. Landesque capital is often “purposive” to use Blakie and Brookfield’s terminology, but need not be so (see Doolittle 1984). As with field systems, landesque capital is “fixed in space, but fluid in time,” (Widgren 2007, 61) meaning that landesque capital often survives the particular society which constructed it. Another important aspect of landesque capital is that “the spatial fixity of landesque capital… also involves locally developed knowledge systems of agriculture, irrigation, weather, crops and so on…” (Widgren 2007, 72). Landesque capital thus moves the discussion somewhat beyond the relationship of field patterns to a broader social or cultural context, to integrated systems of land management and exploitation which involve the physical creation or maintenance of land improvements as well as bodies of knowledge on how such land improvements are optimally managed. In this regard, I propose that Soviet era land improvements – in Kherson I am primarily talking about extensive forest shelter belts, which also serve as field boundaries, and a relatively new irrigation system – can be seen as Soviet landesque capital, i.e. long term improvements to the land designed to facilitate agricultural intensification and tied to specific management systems and units (collective farms) and to ideological and scientific bodies of knowledge on how to organize agriculture.

A research problem focusing on this question would then have to answer what elements from this integrated land management system has survived land and agricultural reforms in Ukraine, and which either disappeared or are fading away, and how and why have they persisted or not persisted? Below I will offer some observations and reflections with respect to Kherson Oblast in Ukraine, but in the rest of this section I will offer some theoretical perspectives. Though using a different vocabulary and focusing more on modern, urban landscapes, Dodgshon (1998) offers a number of perspectives that dovetail well with the concept of landesque capital and agricultural landscapes, both historically and with respect to preset day capitalist societies. Dodgshon holds that fixed forms in the landscape acquire inertia which constrain and shape subsequent possibilities for change. There are several mechanisms with which this constraint gets played out. One is that fixed landscape forms, or the “built environment” as Dodgshon puts it, are the result of capital investments. The built environment thus has value. This value means that efforts will be made to preserve and maintain the existing built environment, at least for some time, since it is usually too expensive to rebuild the built environment with each generation (Dodgshon 173). However, the value of fixed forms in the landscape inevitably also depreciates with time or otherwise become obsolete often leading to eventual abandonment of fixed landscape forms for new investments.
Another force of inertia involves the reproduction of knowledge and ideas in a society and their (re)incorporation into organizations and structures over generations. Reacting against structuration theory and its proposition that social structures are constantly reproduced through every day interactions between agents and structure, Dodgshon argues instead that “much of what is acquired through acculturation, conditioning and learning is part of an inherited take-it-for granted world” (ibid, 126). This “tacit” knowledge constrains future developments because “once an investment has been made in particular information channels, it will be cheaper to go on using them than to replace them” (ibid, 131). Crucially, tacit, inherited knowledge is tied into specific organizational forms or structures in society, which over time develop a specific geographic “emplacement” or expression. As Dodgshon argues (ibid, 180): “the more complex a society, and the more stable, then the more likely it is that a greater amount of its available energy is expended on maintaining the flow of given or received forms of knowledge.”

If the built environment and established knowledge and organizations and their geographic emplacement represent an inertial influence on society, how and where does change happen? Since at any given moment society is more likely to be presented with a decision on how a specific landscape-fixed infrastructure should be maintained, “decision moments are invariably decision margins” (ibid, 173). All other things being equal, change usually occurs gradually and incrementally manifesting itself as involution. More substantial change occurs “where the possibilities for involutionary change have been exhausted so that risk-free and low cost solutions are no longer available” (ibid, 186). Writ large, this is a reasonably accurate explanation for the great changes following the collapse of the Soviet Union. Pressure for change comes from agents who, for whatever reason, are not committed to or are not members of the organizations tied to dominant structures and the built-up tacit knowledge essential to their survival. Often these agents are located at the geographic margin of a society, where despite exploitation from the core of society conditions can be freer.

To bring this discussion more into line with landesque capital and possibilities for agricultural landscape change, one can make the following general propositions. Landesque capital has value in that it facilitates increased agricultural production. If and when landesque capital ceases to facilitate increased production, efforts will be either to repair or fix the land improvements in question, or to abandon them. The first development would be inertial in character, while the second would lead to landscape change. As Widgren stated (and as noted above), landesque capital is also connected to specific bodies of knowledge on agriculture, specific technology, and specific farm management techniques. Change is more likely to come from agents (farmers) who are not connected (or only weakly connected) to the organizations and structures that are involved in the management and exploitation of the land improvements.

**Results of Field Study**
The interviews that I conducted in Kherson Oblast had two different themes, reflecting first the focus of discussion and second, to a lesser degree, the occupation/identity of the
respondent. Thus, eight interviews focused on land reform, current land administration and the agricultural landscape, i.e. what are the different elements of the agricultural landscape or the inherited Soviet field pattern, how was land reform drawn across the this landscape and how land use and ownership are regulated today (See Table 1).

<table>
<thead>
<tr>
<th>Respondent #</th>
<th>Occupation</th>
<th>Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Land Resources Official</td>
<td>Kherson</td>
</tr>
<tr>
<td>2</td>
<td>Property Lawyer</td>
<td>Kherson</td>
</tr>
<tr>
<td>3</td>
<td>Forestry Official</td>
<td>Kherson</td>
</tr>
<tr>
<td>4</td>
<td>Irrigation Official</td>
<td>Kherson</td>
</tr>
<tr>
<td>5</td>
<td>Land Resources Official</td>
<td>Berislav</td>
</tr>
<tr>
<td>6</td>
<td>Former State Farm Official</td>
<td>Berislav / Zmievka</td>
</tr>
<tr>
<td>7</td>
<td>Village Official</td>
<td>Berislav / Zmievka</td>
</tr>
<tr>
<td>8</td>
<td>Agronomist</td>
<td>Kakhovka</td>
</tr>
</tbody>
</table>

Respondents in this category were mostly local officials, either current or retired, while one was an agronomist (and landowner) with an international food processing company. The second discussion focus – a total of twelve interviews – focused on farming careers, land acquisition and land use (what crops are grown and farming practices). Here the respondents were all current farmers with a commercial orientation, though with different size farms (See Table 2).

<table>
<thead>
<tr>
<th>Respondent #</th>
<th>Farm Size</th>
<th>Location of Farm or Job</th>
<th>Farm Organization</th>
</tr>
</thead>
<tbody>
<tr>
<td>9 &amp; 10</td>
<td>100 ha</td>
<td>Beryslav / Zmiivka, Family Farm</td>
<td>Family Farm</td>
</tr>
<tr>
<td>11</td>
<td>50 ha</td>
<td>Beryslav / Zmiivka, Family Farm</td>
<td>Family Farm</td>
</tr>
<tr>
<td>12</td>
<td>400 ha</td>
<td>Beryslav / Zmiivka, NGO</td>
<td>NGO</td>
</tr>
<tr>
<td>13</td>
<td>18 ha</td>
<td>Beryslav / Zmiivka, Family Farm</td>
<td>Family Farm</td>
</tr>
<tr>
<td>14</td>
<td>2 ha</td>
<td>Beryslav / Zmiivka, Subsidiary Agriculture</td>
<td>Subsidiary Agriculture</td>
</tr>
<tr>
<td>15</td>
<td>4000 ha</td>
<td>Kakhovka (and land in other provinces)</td>
<td>Farm Enterprise</td>
</tr>
<tr>
<td>16</td>
<td>9000 ha</td>
<td>Kakhovka</td>
<td>State Farm</td>
</tr>
<tr>
<td>17</td>
<td>?</td>
<td>Kakhovka</td>
<td>International farm consultant</td>
</tr>
<tr>
<td>18</td>
<td>60 ha</td>
<td>Kakhovka</td>
<td>None</td>
</tr>
<tr>
<td>19</td>
<td>100 ha</td>
<td>Skadolvsyk</td>
<td>None</td>
</tr>
<tr>
<td>20</td>
<td>300 ha</td>
<td>Skadolvsyk</td>
<td>Family Farm</td>
</tr>
<tr>
<td>21</td>
<td>5000 ha</td>
<td>Holna Pristan' (and land in other provinces)</td>
<td>None</td>
</tr>
</tbody>
</table>

There was considerable overlap in discussion topics between these two groups, with the second group offering comments and insight into the first set of questions. One main reason for this is that most farmers personally own some land, and therefore can comment on different aspects of the geography of ownership of agricultural land in Ukraine. Beyond this thematic difference in interviews, there was a geographic difference as well (See Figure 2). I conducted a total of eight interviews in Beryslav Raion, six farmers and three officials (two of the farmers – respondents 9 and 10 – were interviewed at the same time). In Kakhovka Raion I conducted five interviews: four farmers and the agronomist with an international food processing company. In Skadovsk Raion I conducted interviews with two farmers, though in one of the interviews a local
agricultural official was present, who was a friend of the farmer being interviewed. In Kherson, I interviewed a farmer from Hola Pristan Raion. Also in Kherson, I interviewed three officials and a property lawyer. The information I gained from my interviews in other words come from western, central, or south-central Kherson, on both sides of the Dnipro, and all somewhat close to the Dnipro (See figure 2).

In the first section of this part of the thesis, I will describe the geography and history of Kherson Oblast. In the following two sections, I will summarize the results from the interviews. These results will be divided into two sections in keeping with the themes of the discussion. Section two concerns the physical features of today’s agricultural landscape in Kherson Oblast, how land reform drew ownership lines across this landscape, and the role of the local government today in land administration. The third section concerns farming careers, land acquisitions and relations and land use in the new/old agricultural environment. Information from maps and satellite images, plus my own observations from walking the landscape, will be used to complement the results of interviews, particularly with respect to the second section. Local agricultural statistics will be presented as well, mainly with respect to the third section. The intent was to investigate the roll of the agricultural landscape, but this section will also present a survey of agriculture in Kherson and thereby contribute to an update of agricultural trends in Ukraine.

**Section 1: Background Information on Kherson Oblast**

**Geography of Kherson Oblast**

Split by the Dnipro river, Kherson Oblast is situated just to the north of the Crimean peninsula. With a total territory of 2.8 million hectares (or 28,000 km²), Kherson Oblast has a continental, semi-arid climate. Average rainfall is between 300 to 420 mm per year, and there are on average 200 frost free days per year (Butich et al 1983, 9). Winters are generally mild, though occasional harsh winters and late frosts do occur. Almost all of the respondents in my study discussed the climate and weather. A common observation was that, climate-wise, agriculture in Kherson is risky, and that one can expect a drought every three or four years, plus other weather events detrimental to agriculture (see also Symons, 1972 112). Kherson is part of the West Pontic grass steppe zone, though, because most of the land is now cultivated, the original steppe remains only in a few nature reserves or in other areas not suitable for cultivation (See Moysiyenko and Sudnik-Wojcikowska 2008, 2006; Moysiyenko et al 2006). Also, Kherson contains Europe's largest desert – the *Oleshevskie Peski* – testifying to the dry climatic conditions.

Northern and right bank (western) Kherson possess black earth soil, but the soil layer is not as thick as the oblasts to the north (according to Respondent 10 who has an agricultural education), and the black earth layer attenuates and disappears the further south one goes, turning into somewhat saline chestnut soils (Butich et al, 10; Moysiyenko and Sudnik-Wojcikowska 2008, 141; Symons 1972, 130-132). Topographically, Kherson is well suited for agriculture, possessing a flat or only slightly undulating terrain. Right bank Kherson is slightly more undulating with erosional depressions along the Dnipro making some parts unsuitable for cultivation. The current population of Kherson Oblast is 1,099,200, according to projections from the Kherson branch of the State Statistical
Committee (Kherson SSC 2008, 8). This is down roughly 12% from the Soviet period. 38.9% of this population is rural – 427,200 people – which is a ratio that has been roughly constant through the post-Soviet period.

Kherson Oblast: Settlement and Agriculture
Historically, Kherson’s (and southern Ukraine’s) wide open steppe has served as invitation for many different groups to settle or pass through the region, movements which often entailed conflict. Before the Middle Ages, the Kherson area had been home to Cimmerians, Saramatians, Scythians, Bulgarians, Huns and others and there was robust trade with Greek settlements along the Black Sea and beyond (Moysiyenko and Sudnik-Wojcikowska 2006b, 388; Butich et al 1983, 11-16; Herlihy 1986, 2). A trace of these different groups lives on in the present agricultural landscape in the form of kurgans or burial mounds (See Figure 3). Now preserved as archeological monuments, there are some 5,000 kurgans in Kherson, ranging in age from 5,000 to 700 years old (Moysiyenko and Sudnik-Wojcikowska 2006b, 388). From the middle ages until the early modern period, southern Ukraine was a true frontier or marcher territory. Indeed, as often cited, “Ukraine” means “at the frontier / border” in Ukrainian and Russian. The Polish-Lithuanian Commonwealth was slowly retreating back to the West, Russians were steadily moving south while Crimean tartars (descendents of the Tatars of the Golden Horde) and their Ottoman patrons were moving north. Fiercely independent Slavic warriors – Cossacks – occupied the buffer zone between these three empires. Gradually of course Russia conquered southern Ukraine, completing the conquest of what today is Kherson Oblast in 1783 (after having taken the right bank of the Dniro in 1774).

The territory that would become Kherson Oblast became part of New Russia (Novorossia), a region extending from Odessa in the west to the Sea of Azov in the East. Today’s Kherson Oblast, which was not established in its present boundaries until 1944, was divided into two Guberniyas (which was the Imperial Russian territorial designation corresponding to Oblast): Kherson Guberniya extended from the right bank of the Dnipro to the city of Mykolaiv (in Russian: Nikolaev) on the Southern Buh River, while what is today left bank Kherson Oblast was part of Tavrida Guberniya. Kherson and New Russia in general were unique relative to the rest of Russia in several ways. One way was the composition of the peasantry. There was a relative dearth of the so called bonded peasants or serfs, who, in the more populated parts of the Russian empire, were virtually the private property of their landlords. So-called state peasants, who were somewhat better off than the bonded serfs, and free peasants predominated, the latter consisting of, among other groups, runaway serfs who, contrary to the wishes of Russian landlords
elsewhere in the empire, were granted freedom by the tsar as long as they stayed in New Russia (See Herlihy 1986, 73-77; Butich 1983, 19-21; Pallot and Shaw 1990 27, 31).

Another manifestation of the region’s uniqueness was the region’s ethnic diversity. The majority of the population of New Russia was Ukrainian, but there were significant minorities of Russians, Jews, Bulgarians, Greeks and Germans. The region had long been ethnically diverse but still relatively empty, so the Russian authorities, keen for their new territory to be settled, encouraged different groups, including German Mennonites, who became prominent farmers and traders, other German colonists (Catholics and Protestants), Swedes, Poles and others, to colonize the area with the promise of land and other special benefits (See Pallot and Shaw 1990, 81-87; Herlihy 1986, 24-34). Importantly, colonists were also freeholders of the land, though their special privileges were gradually taken away. It is in this context that Swedes from Estonia were induced (Karlgren 1929, 7; Hedman 2000 41) to come to Kherson in 1781 – the first colonists to come to Kherson by invitation of the Russian Empire – establishing Gammalsvenskby (Old Swedish Village) or Staroshvedksoe (Старошведское which is Russian for Old Swedish Village). This village still exists, and is now called Zmiivka. Though descendents from the Swedish colonists live in the village, the Swedish presence is increasingly a memory.

In essence, despite its full incorporation into the Russian empire, Kherson and New Russia retained many of the characteristics common of frontier or peripheral areas. Dodgshon (1998, 188, 198) describes such peripheral areas as “diverse,” “hybrid” and “more flexible.” Such areas “are less likely to uphold [core areas’] identifying values, norms and beliefs and play a part in maintaining its ideological symbols and organizational forms…” (Ibid, 188). It is not an uncommon historical pattern, according to Dodghson, that change agents originate in such peripheral areas, and sometimes (but certainly not always), their ideas spread, through various mechanisms, to core areas. This observation appears particularly relevant to New Russia in that the generally freer conditions there relative to the rest of the Russian Empire, particularly when New Russia was first incorporated into Russia, gradually became the norm throughout the empire. As Herlihy (1986, 83) writes: “[New Russia] offered a model of a productive economic system based largely on freedom.”

Prior to New Russia’s incorporation into the Russian empire, agricultural was primarily pastoral in character. Livestock husbandry, particularly sheep, remained important during the New Russian period as well, but by the 1840s (Butich 1983, 21), grain production (wheat in particular) began to dominate Kherson’s and New Russia’s agriculture. Indeed, colonists such as the Swedes and the Mennonites came for the most part to take up

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6 Zmiivka is the result of a 1915 combination of Gammalsvenskby with several nearby and larger German settlements which were established some 20 years after Gammalsvenskby. Mühlhausendorf, a colony of German Protestants, was founded in 1804; Kolsterdorf, a colony of German Catholics, was founded in 1805; and Schlagendorf, a colony of German Protestants, was founded in 1806. The name Zmiivka is in fact a Ukrainization / Russification of Schlagendorf, (snake-village in German). “Snake” is the root word in the name Zmiivka (змея / zmeya is the Russian word for snake).

7 Following WWII, Ukrainians from western Ukraine were relocated to Zmiivka. This plus, inter-marriage and the recent emigration of ethnic Germans, has made the village more “Ukrainian.”
agriculture in the rich soils of the region (See Pallot and Shaw 1990, 99). During the 19th century, New Russia became a significant wheat producing and exporting region, facilitated by its proximity to the Black Sea. From its earliest days, agricultural production in New Russia had a commercial orientation, and already in the early 19th century wheat from this region was famous throughout Europe for its good quality (Herlihy 1986, 59; for more on the commercial orientation of the region see also Pallot 1983, 427; Pallot and Shaw 1990, 134). Livestock husbandry continued to be practiced, but it took a second seat to grain\(^8\), which was more profitable, and was not mixed into arable farming. There are several reasons for this. One is the native fertility of the then virgin black earth and chestnut soils of New Russia. There was little need to use manure as fertilizer, and the manure that was produced was generally used as fuel and not applied to the land (Pallot and Shaw 1990, 115). A second reason was the relative low population density, particularly compared with northern and eastern Ukraine, and the Russian central black earth areas. These two factors allowed for extensive cultivation of arable land; a kind of long fallow or “varied fallow” system predominated, under which a certain area would be under continuous cultivation for four or five years, after which it would be fallowed for up to ten years (Herlihy 1986, 60-61; Pallot and Shaw 1990, 114-117, 122-131). As Herlihy writes (Ibid): “this loose system of crop rotation required little startup capital; indeed the cultivator, with abundant land at his disposal, invested in hardly more than the cost of seed and a few simple tools for a country chronically short of capital, the cheaply produced grain earned abundant returns on foreign markets.”

Though some farmers tried to modernize – particularly the larger estates (see Butich 1983, 30; Herlihy, 1986 178-180, 210) – intensification of agriculture generally lagged behind developments in North America and Europe, and farmers there gradually displaced Ukrainian farmers on world markets. The continued extensive nature of Ukrainian wheat production in the 19th century can be seen in the average yield on grains for a 18 year period (from 1887 to 1904) on the territory corresponding to today’s right bank Kherson Oblast, which was roughly 0.5 metric tons per hectare (Butich et al 1983, 30). By comparison, the average wheat yield in the US in the late 19th century was around 1 metric ton per hectare (over 15 bushels per acre) (Chrispeels and Sadava 2003, 24).\(^9\) To complete the comparison, the 2008 grain yield average for the same area in Kherson Oblast was 2.95 metric tons per hectare, which is yield roughly equal to or better than current American yields.\(^10\) Both in terms of marketing their grains on world markets, and

\(^8\) According to Herlihy (1986, 176), citing a Soviet source, 92.8% of all sown land in New Russia in 1881 was planted to cereal grains, with wheat constituting 48.6% of this, rye 19.2% and barley 14.8%.

\(^9\) Since the Ukrainian figure relates to “grain” yield – even though wheat was the principle grain then – this is still comparing a more precise category, wheat, with a less precise category, grain, and should therefore be treated with some caution.

\(^10\) This is a rough comparison. The yield figure for the late 19th century is found in Butich et al (1983, 30). It was originally expressed as 34.3 puds per 1 desiatina for Kherson Uezd (уезд), which is a sub-Guberniya territorial designation, which corresponds (roughly) to the current six right bank municipalities (raioni) in Kherson Oblast. One desiatina corresponds roughly to 1.092 hectares, while 1 pud is 16 kg. Thus, 34.3 puds / desiatina amounts to 502 kg / hectare. Or 0.5 metric tons per hectare. The current yield figure cited above is the weighted yield average of grains and legumes (relative to the harvested area) from the six right bank Kherson municipalities. Obviously farmers cultivated a different mix of grains in the 19th century compared to today. Farmers cultivated more rye earlier (see Herlihy 1986, 176), and more barley is probably cultivated today. Also, there were likely different methods for compiling statistics, as one would
in terms of intensification of grain production, farmers were not helped by the unpredictable weather and semi-arid climate. Lack of rain during the spring and summer months was a particular problem. As Karlgren (1929, 19), in his exposition of Gammalsvenskby around the turn of the century, describes pasture and hay land during the summer months: “in the summer it all turns into a yellow brown desert, where the sun burns away the smallest blade of grass.” The arid conditions plus the possibility of a harsh winter, which could destroy the winter crop, a late frost, which could damage the spring sowings, or summer hail meant that irregular harvests and regular crop failures were a fact of life (See Ibid, 28; Herlihy 1986, 61-62; 210).

Another common reason cited for lagging agricultural intensification in southern Ukraine (and in Russia in general), was a perceived small average holding size (Herlihy 1986, 181; See also Pallot and Shaw 1990, 165). In other words, the question of land tenure also played a role in hindering intensification of agriculture. Two attempts at land reform were made to rationalize agriculture and improve conditions for the rural population (though these two goals would at times prove contradictory). The first attempt – the emancipation of the serfs in the 1860s – was an historic event, the actual details of which, however, were generally seen as unfavorable to the peasantry (and to the rationalization of agriculture). Peasants were made to pay an onerous redemption to their former landlords. Moreover former landlords usually managed to acquire better quality land, while, in many cases, peasants were left with less land than they had rights to as serfs.11 According to the terms of the emancipation, peasants were granted communal tenure to the land, which they farmed in strips within larger fields. This reinforced the practice of repartitioning strips among village members. Though as Pallot and Shaw demonstrate (1990, 137, 167; see also Pallot 1983, 86-87), the practice of repartition was very regionally diverse, both within and between regions, and in some areas had mostly died out by the end of the 19th century. Pallot (1983, 85) notes the Black Sea area as a region where repartitioning strips was on the decline – peasants still farmed strips within common fields, but the strips were inherited and passed on within families.

Despite the unfavorable terms of emancipation, the rural population increased dramatically during the second half of the 19th century. As a result, peasant households divided their land more and more, leading to ever smaller parcels and farming units. Herlihy (1986, 171-177) reports that even the land belonging to gentry in New Russia was becoming more fragmented. A series of land reforms – the Stolypin Reforms – were then implemented between 1906 and 1911 to address this situation (see Robinson 1932, 208-209). The goals of this reform were to consolidate and enclose fields and expand the area accessible to peasant farmers (particularly successful farmers) to encourage a transition from extensive to intensive production. In this regard, it is worth noting that part of the intent of these reforms was a radical redrawing of the landscape, i.e. to eliminate the repartitional peasant villages and to get rid of the common fields and pastures and instead create a landscape of free-holders living on a consolidated piece of

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11 Bonded serfs were “freed” in 1861, while state serfs were freed several years later. State serfs generally received better emancipation terms.
land (See Robinson 1932, 219). Pallot and Shaw (1990, 166) note that “precise specifications where given of the shape [the enclosed farm] should be… and of the disposition of the fields and buildings.” Kherson Guberniya is cited as an area where the enclosure movement was the most successful (more than 10%), while Tavrida Guberniya is one of the areas with a low amount of enclosure (less than 5%) (Pallot 1983, 100). In general, echoing the situation with respect to today’s land reform in Ukraine, the effect on the cultural landscape was minimal (Ibid, 107). One main reason for this was, according to Pallot and Shaw, that the peasants were not as enthusiastic about the enclosure as reform proponents hoped, preferring to maintain some if not all aspects of communal ownership (Pallot and Shaw 1990 186).

There are two main points I wish to highlight from this historical overview, which I feel are relevant for the development of a research problem focusing on contemporary land reform in southern Ukraine. One is that the semi-arid climate and unpredictable weather and the problems these engendered in agricultural production are a historical constant, to the present day, though the Soviets, as will be discussed below, managed to mitigate these problems in some areas. The second point concerns the parallel between the Stolypin reforms and the current effort: both were state-directed programs, which found little enthusiasm among the intended beneficiaries, which in turn contributed to disappointing (in the eyes of reform proponents) results on the ground. There is one other significant land reform that took place in southern Ukraine, which is of course the forced collectivization of peasant farms (and resulting famine) which took place in the 1930s. In contrast to the reforms preceding and following it, this had a tremendous impact on the landscape, in effect erasing the previous landscape formations, and replacing them with a new landscape of large, mechanized farming units. It is a discussion of a specific Soviet landscape that I turn to next.

Section 2: The agricultural landscape, land ownership and land administration

Agricultural Landscape: Field Systems, Irrigation, and Forest Strips

Of Kherson Oblast’s 2.8 million hectares, 1.97 million hectares or 70% are officially designated as agricultural land (Kherson SCLR 2009). This total corresponds to the amount of land classified as agricultural at the national level which is 69.2 % or 41.76 million hectares (Roth and Valetta 2006, 35). “Cultivated Fields” accounts for 1.71 million hectares, or 87% of Kherson’s agricultural land.12 So, what do all these cultivated fields look like, and how are they organized on the landscape? The most obvious feature, clearly visible in satellite images and corresponding with what one would expect from a post-Soviet field layout, is that the fields are very large. Fields of 60 and 70 hectares are common, and some fields are even larger. I visited one field, planted to winter wheat that was 300 hectares.

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12 This is one possible translation for the Ukrainian term rillya /рілля, which can also be translated as tilled or plowed land or arable land.
But the question is, what defines a field? An example of a field layout in Kherson is provided in Figure 4, which is excerpted from a Soviet military topographical map produced in 1990 covering the village of Zmiivka in Beryslav raion. As a military topographical map, the chief function of the map was not to map land use, but to show topography and map possible hindrances for military movement across the territory. However, the layout of agricultural fields can be deduced from these topographical maps, as I substantiated in meeting with farmers from Zmiivka during which I used a similar map so that farmers could point out where their farming activities take place. To be more precise, these maps show where forested shelter belts have been planted, presumably because lines of trees might reduce visibility for or hinder the movement of any traveling military. Most respondents directly or indirectly confirmed that these forest strips, as indicated on the map, serve as one of the principal boundaries for the different fields outside the village. Other principle boundaries are roads and other permanent features of the landscape such as irrigation canals and ditches. There are several points to note here. One, the information contained on this map from 1990 is still largely relevant at least with respect to field or parcel size and layout in this particular area. In other words, the shelter belts, and thus the field layout have not changed significantly since the 1990s. Second, is that, as I have indicated in Figure 4, these are rather large fields. Third, many of the fields are long and rhomboidal (though usually nearly rectangular) in shape, triangular or some other standardized geometric shape. The probable reason for this particular shape is so that tractors and combines did not have to turn as much, saving on fuel costs and simplifying sowing, plowing and harvesting. This is a phenomenon noted in other countries (Hart 1998, 278), and another farmer I interviewed, who used to be an agricultural engineer on a state farm, albeit not in Zmiivka, cited this as a reason for the long, rectangular fields on the state farm that he used to work on (Respondent 20).
The fields in the northern part of the state farm are today used as whole fields and planted to one crop, which was winter wheat this season, and according to respondents, winter wheat last year as well (before which the land was used irregularly for several years). These fields are leased by a large holding company, that – according to one respondent (respondent 6) – leases some 70% of all of Beryslav Raion. The closer one gets to the village, there is a greater likelihood that these large fields are divided up and planted to several crops, reflecting either different owners or users of the land, usually for subsidiary agriculture, or the same user, but managing their crop rotation on a consolidated piece of a field. This was particularly the case for the land reserve, where several family farmers lease or own somewhat larger, usually rectangular blocks of land, comprising part of a larger field, and household plots occupy smaller blocks or strips. I noted a similar pattern in a field belonging to the land reserve of a village in Skadolovsk also.

There are regions of Kherson that, instead of having long, rectangular fields, have square fields, with circular insets, arrayed in a grid like fashion. This is shown in Figure 5, which is a Landsat image, acquired on 14 June 2007, over the raion of Kakhovka, which is located across the Dnipro from Zmiivka/Beryslav. (The bend of the Dnipro where Zmiivka is located can be seen at the upper left of the image). This field pattern stems from an extensive irrigation system, for which Kakhovka Raion is a principle, but far from only, beneficiary. This irrigation system was built between the 1960s and the early 1990s, as part of a Soviet drive to expand the amount of territory under crops and increase production. Today, roughly one fifth of Kherson’s agricultural territory is irrigated, mostly taking place on the left bank (Respondent 19). Two canals originating from the Kakhovka Reservoir, clearly visible in Figure 5, deliver most of the water to farms. A network of pump stations and underground pipes deliver the water to the fields where water is sprinkled onto the fields by center pivot frigates¹³ – see Figure 6 – which pivot from the center of the field, moving in a circle and taking anywhere from

¹³ “Frigate” is the term all farmers used to describe the sprinklers which rotate through the field. This is a Russian / Ukrainian term for a certain kind of rotating sprinkling system.
three to eight days to complete one revolution. The movement of the frigates is what defines the circular shape and size of the fields.

Though parts of the system are 40 years old, the system as a whole was only completed just after the end of the Soviet Union. According to an engineer from the irrigation authority, no major overhaul of the system has occurred since its construction. In other words, the entire system continues to be constituted by Soviet equipment and supplies, with spare parts mostly being supplied by vendors in Ukraine, Russian and Belarus (Respondent 4). According to the same engineer, the frigates were originally built to be moved from one field to the next, as needed, though now few farmers move them for fear that they will break. Ownership and responsibility for maintaining irrigation assets has been divided up and in some areas is unclear. The canals and pump stations are owned and maintained by the irrigation authority, while the underground pipelines and frigates are supposed to be owned by local village administrations according to a property lawyer (Respondent 2) citing the relevant law, though this respondent and others (Respondents 7 and 8) said that large operators “own” some of the equipment. The irrigation system has suffered from deterioration and looting. Thus the state farm Kommunist in Zmiivka once had 900 hectares of irrigated land. As several sources recounted (Respondents 6, 9, 10) the irrigation equipment was looted in the 1990s. However, the pump station and pipelines in Zmiivka remain in functioning order, and continue to be maintained, though they provide no water to farmers in the area. Respondents in Kakhovka also complained about the quality of the irrigation system and noted some cases of looting, but all respondents (for my study) from Kakhovka indicated that they themselves get reasonably reliable deliveries of water at a subsidized rate, though rates are likely to go up this year due to the financial crisis. The engineer from the irrigation authority (respondent 4) described the people of Kakhovka as “patriots” because, according to him, they protected their irrigation resources, in contrast to people in other areas. Thus, despite some problems, the system in Kakhovka appears to be in reasonably working order. The overall impression is that the irrigation authority has done what it can to preserve its infrastructure of pump stations, canals and sluices, while the maintenance of infrastructure that connects fields to these water sources has depended more on the initiative of local administrations and farmers, with mixed results. There are no water user associations, and, as in the Crimea, governance of the irrigation system has not been reformed (Pavlov 2006, 63).

14 A main factory producing irrigation frigates is “Frigate” in Mykolaiv. Their web-site, which is in Ukrainian, Russian and German (but not English) can be found at http://www.fregat.mk.ua/index.php.
Irrigation in Kherson Oblast is not just a center pivot phenomena. South of Kakhovka, in the municipalities of Skadovsk and Hola pristan, for example, there is also a significant amount of irrigation. These systems were established earlier, according to respondent 21, and they rely either on the ground water, are on the irrigation canals described above. The water is delivered to the fields by dragging a sprinkler across the field with a tractor or, increasingly through drop irrigation. Drip irrigation generally involves laying a number of rubber tubes across the length of the field. Water then flows through these tubes, entering the ground where the tubes contain slits or holes. The field pattern in these two municipalities does not have the round fields of Kakhovka, and instead is more rectangular as in Zmiivka.

The forest strips mentioned above deserve extra comment, as they are important features of the agricultural landscape and have an important function. The forest strips – lesopolosa in Russian – are wind shelters, and their purpose is, as expressed in a recent study of Kherson’s forest strips: “to reduce the speed of the wind that blows in the steppe all year round, and thus… prevent wind erosion and dust storms [and] help to stabilize snow cover and improve soil moisture conditions” (Moysiyenko et al, 77; see also Kort 1988, 184). This is important in Kherson since preserving soil moisture is essential in the semi-arid conditions, and one wants to prevent erosion of the black earth soils. Altogether then, there are over 30,000 km of forest strips in Kherson alone, averaging some 9 meters wide (Respondent 3), and planted generally in the grid like fashion seen in the map. Forest strips began being planted roughly 100 years ago in southern Ukraine, but most of the current forest strips were planted between the 1950s and 1970s, after a series of dust storms sparked concern about erosion (Goldman 1972, 171; Symons 1972, 294). The trees in the forest strip have a projected life span of 50 years (Moysiyenko et al 2006, 78). However, since the break-up of the collective farms, many forest strips have begun to deteriorate.

Respondents offered various, overlapping explanations for this apparent deterioration. Several respondents for example, stated that, since most villages do not have village-wide, gas-fed heating systems, like the cities, they must use either fire-wood or coal to heat their homes. Buying fire-wood and coal is expensive, so trees in the forest strips are cut down and used as fire-wood, despite it being illegal. One respondent (6) said it is mostly younger people who do this, as older people in the village understand what the forest belts are for. Another reason for the deterioration of the forest belts has to do with land use practices. Farmers have begun to occasionally burn fields after harvest to make it easier to plow later. Soviet era combines – which are what most farmers have – leave a lot of stubble in the ground, and the special attachment, which in the Soviet period was towed behind the combine and which could better chop up and spread this stubble (and also spread organic matter over the whole field) increases fuel costs, so farmers now elect not to use it (respondent 9, 10, 20). Finally, a third reason, cited directly or indirectly by numerous respondents, is that there is no ongoing maintenance of the forest strips, and there appears to be confusion regarding who even has the responsibility for maintaining the forest strips. Earlier, the forest strips were the property of the collective or state farm, who decided where they should be planted and who were charged with maintaining them. Now, the forest strips are “on the books” of local (village) administrations, i.e. they are
owned by local government, while a local state corporation \textit{Kherson-Les} (Kherson-Forest) has responsibility for developing a program of maintenance of the forest strips (Respondents 1 and 2). However, none of my respondents had seen any evidence that the forest strips were being maintained. Also, while two respondents who are in a position to know could explain who owns and who should maintain the forest strips, there remained confusion among other respondents about these questions, with some respondents believing that land-owners and/or land-operators are responsible for maintaining the forest strips.

The field system and lines of ownership
While the forest strips and irrigation system remain in state ownership, albeit decentralized to the local level, most of the fields have private owners. Who owned what plot and where were not however immediately obvious. This is in other words the first observation to make about ownership of farm land – that it has left little mark on the landscape. I saw no new fences or hedges or lines of trees and, with one exception to be discussed below, none of the respondents who were land owners showed especial interest in demarcating their own territory.

To return to Figure 4 above, showing the northern part of the former farm Kommunist, these fields now have numerous owners, with each owner possessing a plot rectangular in shape, containing roughly 4.5 hectares. From the material and state acts that I saw, most of these plots extend from one forest strip to the other. In other words, the original Soviet field system was retained and a new geometry of ownership was placed inside the old field system, which was what I observed everywhere I visited. The former official from the state farm (respondent 6), who was chief economist and chairman of the committee that led the privatization process, described the process according to which land was divided up between 2001 and 2003: fields were surveyed and plots were platted out. A map of this was produced and made available to workers and pensioners from the farm – roughly 1,000 people. Surveying was conducted by a local firm that was hired by the U.S. Agency for International Development, which financed the privatization of the farm, as part of its Ukraine Land Title Initiative (ULTI). Those who were eligible could sign up for a plot on a first come, first served basis. In very many cases, extended families coordinated so that an entire field would be owned by one extended family. In such cases, as recounted by the former chief economist, one person was often chosen from that family to represent all land owners with respect to the field. Most people, including the respondent, had no desire to use the land themselves, but rather hoped to lease out the land to a land user. According to this respondent, and another one (Respondent 14), those who did wish to use the land themselves generally tried to get plots close to the village. According to this respondent, there was general awareness that the fields closer to the road along the northwest border of the farm were generally of better quality. Be that as it may, most people prioritized the possibility of getting a plot in a field with a family member, or, if one intended to use the land oneself then a plot closer to the village. There
is a legal process, which then cost 85 UAH\textsuperscript{15}, to get one’s plots registered and receive the state act or title. It now costs more to receive a state act – 800 UAH (Respondent 2).

The privatization of the state farm Michurenets, the other state farm in Zmiivka, presents to a certain degree a contrasting example. Michurenets was smaller – 1,100 hectares to Kommunist’s 5,800 hectares – and focused on fruit and wine grape production. Michurenets, in other words, represents the privatization of orchards and vineyards. Privatized plots were naturally smaller, at about 2 hectares per person, with the actual size depending on soil fertility. One key difference between Michurenets and Kommunist is that land reform beneficiaries from Michurenets received ownership of the land, while the fruit trees and grape vines remain in the ownership of the former state farm (respondent 12), which went bankrupt in 2007 and is in the process of liquidation. This will be discussed in more detail immediately below, but this is one reason why much of this land has been abandoned – the farm generally refuses to allow people to tear up the fruit trees or grape vines. Another difference is that land was distributed by lottery, and not on a first-come / first served basis, so taking a plot next to a relative was not possible.

The privatization process in state farm Kommunist was generally described as amicable (respondents 5 and 6). A local official from the SCLR in Beryslav (respondent 5) stated that most land privatizations in Beryslav Raion were resolved amicably, on a first-come/first served basis. According to another SCLR official (respondent 1), where there were disputes between beneficiaries, plots of land were assigned according to random lottery. None of the respondents with a connection to state farm Michurenets mentioned any conflict among beneficiaries, so there may be another reason why land from Michurenets was distributed by lottery. This land distribution process is virtually complete in Kherson, with 96% of those entitled to ownership of a piece of land, having received their plot and registered their ownership (Respondent 1). The remaining portion belong either to people who have moved away or died during the privatization process and their heirs have yet to act to claim the plot of land.

Though several respondents showed me their state acts, in which there was a small map of their plot, I saw few obvious markers of ownership in the ground, and few respondents said that they staked out their plot in any way. In Kommunist, when the plots were first surveyed, poles were put in the ground to mark the plot, but, according to most respondents, these were destroyed during the next season’s plowing. A similar story was told by respondents in Skadovsk. I did see wooden stakes, usually with a plastic bottle on top, in the ground around some fields, and several respondents said that these could indicate ownership or lease-hold boundaries. However, it was pointed out that these could also mean that a farmer wanted to know where s/he should turn their tractor/combine for whatever reason, i.e. these stakes indicated some sort of internal boundary. Only one respondent (19), in Skadolvsk stated that he has retained the original poles which were placed around his ownership plot when he first received it. Another, somewhat more prominent boundary, consisted of new dirt roads, cutting into and usually dividing a field

\textsuperscript{15} UAH refers to \textit{Hryvna} (pronounced “Grivna”), which is the Ukrainian currency. Today, one Hryvna equals (roughly) one Swedish \textit{Krona}, or one U.S. dollar buys eight Hryvna or Kronor. Until the recent financial crisis, one U.S. dollar was worth five Hryvna.
into different parts (halves or quadrants). The roads were not created on purpose, but rather, as two respondents said (12 and 18), the act of repeatedly driving (tractors or other vehicles) to one’s portion of the field over one or more growing seasons had the effect of leaving a road. The dirt roads that I saw generally reflects ownership or lease-hold boundaries. In general, all respondents indicated ambivalence on the question of marking off their owned or leased land.

Another important aspect to note is that none of the farmers I talked to lived close to their fields (leased or owned) or even wanted to live closer to their fields. Several respondents scoffed at the very notion. Farmers and, for that matter, agricultural workers, live instead in nucleated villages or towns and commute out to their fields to perform agricultural work. As discussed above, plots for household or subsidiary agriculture tend to be located closer to villages, while large-scale agriculture is removed somewhat from settled areas, though I observed many exceptions to this general rule. This settlement pattern is a legacy of Soviet rural planning, and one not easy to change, since, as one respondent (9) related: “how could we even live by our fields? There is no infrastructure there, no electricity. We might even get sprayed [by herbicide], by the big operator working the field next to us!”

Land Administration and Land Designations
Above I have mentioned that 70% of agricultural land is classified as agricultural land. Beyond the basic class of agricultural land, Kherson’s 1.97 million hectares of agricultural land are further broken down into the following categories: cultivated fields (1.71 million hectares), pasture (156,000 hectares), hay fields (10,200 hectares), and orchards and perennial plantations, which includes vineyards (27,300). These classifications beg the question of who is classifying land, and, in a time of change, how accurate these classifications are. These terms are official designations, noted in the land cadastre and maintained by the SCLR. These categories remain unchanged from the Soviet period (though they are now in Ukrainian as opposed to Russian). Interesting to note is that, both nationwide, and in Kherson, the amount of land in these different classifications has hardly changed over the last 15 years (see Table 3). As we shall see, and as has been noted by Roth and Valletta (2006, 35-36), this does not mean that the land has not changed, but that the designation of the land has not changed.

<table>
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<tr>
<th>Table 3: Ukraine-wide land designations</th>
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<td><strong>1991</strong></td>
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<td>Agricultural Land</td>
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<td>Cultivated Fields</td>
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<td>Pasture</td>
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<td>Hayfields</td>
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<td>Perennial Orchards</td>
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</table>

(Roth and Valletta 2006, 35)
It is important to expand on this point. A general theme from all the interviews where this topic was discussed was that these official designations are very difficult to change. In Kherson Oblast this was particularly evident with respect to orchards and perennial plantations. In the Soviet period and before, fruit and wine production were important elements of the local economy, and this production of course took place on land officially designated for these purposes. However, fruit and wine production in Kherson Oblast has dropped precipitously since the late 1980s. According to official figures, total land under orchards has declined from 22,000 hectares in 1990 to 9,900 hectares today, and total land under vineyards has declined from 20,400 hectares to 7,300 hectares today. Production has also collapsed though, in the last several years, wine grape yields have grown significantly. There are a variety of reasons for this collapse in production, which will be offered below. The point however is that there is an apparent disjuncture between falling wine and fruit production on the one hand, and the fact that land designated as orchards and perennial plantations has barely dropped. In other words, the official tally of land designated as orchards and perennial plantations is not a good indicator for the actual amount of land being used as orchards.

Figure 7, which shows part of an abandoned orchard, is a good example of this phenomenon. This orchard was once part of the State Farm Michurenets. Respondents indicated several interconnected reasons why land such as that shown in Figure 7 is abandoned. One basic reason is that changing land designations is bureaucratic and difficult. With respect to Michurenets, the owner of the fruit trees and grape vines – the former state farm, which is on its last legs – has to assent to the change in designation, and though one respondent (12) said that they were able to manage this process several years ago, right after the privatization of the farm land, the farm now generally refuses permission. The result is land is either abandoned, as in Figure 7, or, in some cases, respondents (7, 12) referred to people simply tearing up the trees without permission and planting something else.

Another example of the disjuncture between official land designations and reality concerns irrigated land. Officially, Kherson has some 349,000 hectares of irrigated land, meaning again, land officially designated as under irrigation. In this case, the information I gained from various respondents indicates that there is likely a greater correspondence between an irrigation designation and land use today. First, in a recent report the Kherson SCLR reports on an inventory of irrigated land conducted between 2000 and 2003, the result of which was that roughly 45,500 ha were de-classified as irrigated land (Kherson SCLR 2009). Also, the former chief economist from state farm Kommunist (respondent 6), noted how looting of the farm’s irrigation equipment in the 1990s had been so
extensive, that almost all the land designated as under irrigation in this farm was changed
to non-irrigation. However, other farmers reported irrigating land that was not designated
as under irrigation, using wells to reach ground water, or finding other ways to pump
water from the Dnipro or other water source. In other words, while a designation as
irrigated appears to be a reasonably accurate indicator that the land is indeed irrigated,
there is more irrigated land in Kherson than what is officially reported. Also, again
testifying to the strictness of the land designations, one respondent (8) stated that, to get
land classified as irrigated, requires getting approval from 12 different agencies.

Section 3: Farmers, Land Relations and Land Use

Farming Career
The farmers that I interviewed were a diverse group, in terms of farm size and
organization and in terms of geography. One aspect however stood out with a few
exceptions. Many of the farmers, I interviewed, eight out of twelve, were to varying
degrees self-taught farmers. This tended to be more the case with the small-scale family
farmers, but one of the large-scale farmers interviewed stated that he had an education in
the humanities and not agriculture. During the Soviet period, they generally had jobs or
were in some other way connected to a collective farm, but these could be diverse – from
being a lathe operator, carpenter or shop keeper, to being a tractor mechanic or
accountant.

Those respondents who had no formal farm training indicated several channels of gaining
knowledge about farming. When asked where they learned about farming, a common
(and expected) response was that they had gained a certain familiarity with farming
simply by growing up in the village. The farmer with an education in the humanities for
example was actually the son of a collective farm chairman. With the exception of
farmers in Kakhovka and one farm in Beryslav/Zmiivka, no respondent reported that they
had had contact with an extension service. Kakhovka is an exception because there had
been a Sida financed project and a World Bank financed project to provide extension
services to farmers there. One of the respondents in Beryslav/Zmiivka had also availed
themselves of the Sida financed extension service in Kakhovka. While there was no real
extension service, with the exception of the Sida project, some farmers benefited from
informal contacts with agronomists. Thus, one of the respondents (20) in Skadovsk, an
agricultural engineer by training, indicated that he got advice from his friend (who was
present for the interview) and who worked in the local agricultural department and had
been an agronomist on the state farm they both worked on. The agronomist working for
an international food processing company (respondent 8) was serving, in an informal
capacity, as a mentor for another of the respondents. Respondents 9 and 10 were brothers
and one of them was a trained agronomist, and he provided advice to some of the other
respondents in the area. Another source of information was from distributors of
agricultural equipment. One respondent (19) cited this with respect to the establishment
of drip irrigation – which is expanding in Kherson – while another (12) cited this with
respect to the setting up of green houses for tomatoes.
One anecdote encapsulates well the self-training aspect of family farmers. This story involves Respondent 19, who had been a soldier (in the Soviet army), and therefore had no agricultural education whatsoever, though he did come from the village where he was farming. Respondent 19’s son studies at the local Agricultural University. As part of a test, he cited how his father cultivates onions. While he did not get a failing grade, he did not get a good grade, and the respondent said this was because they only teach large-scale farming at the university, while he has been forced to literally invent his own systems for cultivating on a smaller scale, systems which work for him, but would not be applicable at a larger scale.

Land Acquisition
In Section 1, I discussed how rural residents acquired ownership of plots of farm land, and the relative lack of property boundaries. In this subsection, I discuss how farmers acquire land, and some of the problems they face. The first point that should be made is that almost all the respondents in this study leased much more land than they owned, which according to Lerman et al (2007, 5-6) is fairly standard for most family farms and of course essential for large scale farm enterprises since, as mentioned, business organizations cannot own land. A first observation which runs through all respondents, with the exception of those in Kakhovka, is that land is generally available for lease, and most respondents have the amount they currently feel that they can farm effectively. Most respondents reported that land owners generally come to them to offer their land, i.e. that land users do not have to hunt for land. Kakhovka is an exception because of the availability of irrigated land, which opens up the possibility of growing high margin vegetables, a broader range of summer crops, and the possibility to make sure winter and spring crops are not damaged during a dry season. Lease rates are generally double in Kakhovka then the other areas I visited, with a hectare of land costing $600 per year in Kakhovka and around $300 elsewhere.16 One respondent told me that several years ago farmers were paying up to $10,000 / hectare to take over leases in Kakhovka. These transactions were taking place between current and prospective lease holders while the actual land owners were not taking part or benefiting. The respondent, who himself looked into the possibility of taking over such a lease, said that this speculative frenzy has since calmed down due to the financial crisis.

Beyond the sometimes stiff competition over acquiring irrigated land, farmers reported other difficulties. One difficulty is historic, and concerns the quality of land in the land reserve that family farmers received in private ownership in the 1990s. As has been reported elsewhere for Kherson (Nilsson 2002) and generally for Ukraine (see Nosick and Valletta 2002, 10), many respondents for my study complained that this land was of inferior quality. This relates particularly to land that they acquired in private ownership from the land reserve in the 1990s. A good example again is Zmiivka, where the land reserve is on a slope, leading to erosion. According to two respondents (13, 14), in summers without rain, pan formation can occur on this land. “It can be as hard as asphalt,” said respondent 13, who was eventually forced to give up half of the land he had received from the land reserve, because he said he could not get anything to grow there. Acquiring land from the land reserve can be problematic in other respects as well. The

16 Respondents generally quoted lease rates in dollars.
pattern that emerges from the respondents is that it was easier to acquire land through this procedure when the possibility was first introduced in the early 1990s. Several years later it became more difficult. One respondent, a family farmer in Skadolvske (20) who tried to acquire land in 1998, had to sue to be able to receive land (in private ownership) from the land reserve. The respondent (12) who farmed land once belonging to state farm Michurenets stated that they also had to sue to get land from the land reserve, but this was relatively recently, and they were fighting over the right to lease land from the land reserve. Several respondents – in Zmiivka and in Skadolvske – cited a preference on the part of the village administration to give this land to people who wish to conduct subsidiary or household agriculture.

A second problem concerns farm fragmentation. Thus, while it is often, though not always, possible to lease a whole field, and most farmers felt that they had the amount of land that they could cope with, it can sometimes be difficult to lease several fields as a block. The result is farm fragmentation, and the farms of all farmer-respondents in my survey to greater or lesser degrees was fragmented. Sometimes this was a matter of several kilometers between fields, though some of the smaller-scale farmers had fields separated by as much as 30 kilometers, which posed transportation difficulties. One respondent (20) talked about how certain crops are hard to grow at a distance – like melons – because of the possibility that they get stolen. Another respondent was having to leave one field fallow this season because it was too far away (Respondent 18). Even the larger scale farmers had fragmented land, including land outside of Kherson Oblast.

A third problem related by respondents, as alluded to above, is that it is not always possible to lease a whole field, usually because of a reluctant or recalcitrant landowner who does not want to do as his or her neighboring land owners are doing. Respondent 20 reported having to once leave a uncultivated square in the middle of a field he was cultivating. Respondents 2 and 8 discussed the impact of a hold-out on an irrigated field. Sometimes it is possible for the irrigation frigate to perform partial revolutions, but sometimes this is not possible, depending on how the field has been divided up and if the irrigation frigate remains in functioning order. Respondent 8 pointed up another aspect of this problem. He, with his extended family, happen to own a part of an irrigated field with a irrigation frigate, land which they acquired from the land reserve. However, the rest of the field has been acquired by “bandits,” and, as he says, “how to you cooperate with bandits.” My sample of respondents of course is not representative of all farmers in Kherson Oblast, so I do not know how wide-spread this problem is. The impression I received is that, while this is an occasional irritant, it is not a wide-spread phenomenon. Indeed, to the extent that fields are owned by members of one extended family, as described above, one would think that there would be relative harmony among landowners concerning how the field should be used and who should use it.

While this was not seen as a problem by most respondents, it should be mentioned that many respondents indicated that their land transactions are informal agreements with landowners renewed on a yearly basis. The reason for this is to avoid dealing with the bureaucracy. This reflected mostly the smaller scale farmers in my survey, though not all of them, as one of the respondents maintaining a smaller farm stated that he had formal
lease agreements with the land owners. Related to this is an informal village and family-based information exchange concerning land which is available. As related by respondent 18, who spoke directly to this and other respondents who alluded to the phenomenon, a lot of people in the village are related to each other or know each other from working on the collective or state farm together, and it is therefore possible to get reasonably accurate information concerning the status of different parcels. Another manifestation of informality or grey market transactions is that several respondents reported that people are finding ways to buy and sell land despite an official moratorium and the lack of a land markets law. Several “tricks” were reported to me. One is to lend money to the landowner using the lease contract as collateral. If the landowner cannot pay back, then s/he forfeits title to the land. Another trick was to perform land improvements on the land that, according to the lease contract, would have to be compensated by the land-owner. One respondent (18) in Kakhovka reported great interest in selling land, on the part of land-owners, though this person also said that prosecutors are investigating some cases and trying to get the sales invalidated.

A final observation is that many of the smaller scale producers in my study reported having in the last several years (i.e. before the financial crisis) either scaled back the amount of land they have under cultivation or stating that they had absolutely no interest in expanding their farms further. The main reason for scaling back, or not expanding, is that costs keep rising, particularly but not only, fuel costs.

Evolving Agricultural Land Use
An important vector for determining the landscape effects of reform concerns changing land use / land cover. In other words, what are all these large fields cropped to and how are the crop mix and other land use practices changing in the era of land and market reforms? I address these questions with agricultural statistics covering Kherson Oblast. Information from the interviews, plus sources covering agriculture in Ukraine as a whole will be used to provide context and some preliminary explanations for changing crop patterns. It should be stressed that assertions as to why more or less of a certain crop are cultivated in Kherson Oblast are speculative in nature, and would have to be confirmed by further study.

Figures 8 and 9 provide a summary of the sown area for different broad crop categories from 1990 to 2008. The categories displayed are derived directly from the classes used in Ukrainian statistics, which are the same categories used in Soviet statistics. Some fairly obvious trends are visible in Figures 8 and 9. There have been sharp decreases in area under feed crops and area under fruit and wine-grapes. Grains and legumes (or pulses – a category, which in Kherson, consists almost completely of grains), have fluctuated, though the trend is downward. Meanwhile, area under vegetables has increased, and oil crops – sunflower seeds, rapeseed, and soy – have increased markedly. Figure 9 shows area under vegetables and perennial plantations, i.e. orchards and vineyards. Here an increase in area under vegetables can be noted while area under orchards and wine-grapes has decreased notably, with both orchards and wine-grapes decreasing roughly in the same amount (though this is not shown in this particular table).

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17 Note, soy is of course a legume, but in Soviet and Ukrainian statistics, it is classified as an oil crop.
Figure 8: The above chart shows the sown area of broad crop categories in Kherson Oblast. The main development is a drastic decrease in the amount of area under fodder crops, while oil crops have increased significantly.

Figure 9: This chart shows the trend with respect to sown area of vegetables and perennial crops, such as fruit orchards and wine grapes.
Figure 10: The above chart shows trends in grains harvested in Kherson Oblast over the last 18 years. Note that wheat – which is overwhelmingly winter wheat – and barley – mostly spring barley, though not overwhelmingly so – are the main grains cultivated.

Figure 11: The above chart shows the area harvested with respect to the main oil crops in Kherson Oblast. The major trend is the increase in all oil crops, with the main crop being sunflower seed, but also rapeseed becoming more and more prevalent in the last several years.
Figures 10 and 11 break down the Grain and Legumes and Oil Crop categories, to within-class trends. Note that Figures 10 and 11 show area harvested instead of area sown. Here the trends are a slight decrease in area under wheat (which is almost exclusively winter wheat), while area under barley (mostly spring barley though some winter barley is planted as well) has held steady. It is noteworthy that, given the overall decrease in area under grains, barley has come to constitute a larger percentage of grains produced in Kherson. While there have been fluctuations, in 2008 barley constituted 29% of all land under grain, while in 1990 barley was only 17%. With respect to oil crops, the trend is a growing proportion of rapeseed and soy, though land under sunflowers has continued to increase as well.

Figures 12 and 13 show productivity trends for selected crops. Note that wheat yields have not increased since 1990 and instead fluctuate, meaning that the decrease in sown area of wheat crops results in a decreased overall output. One cause of the fluctuating wheat yields is weather. 2007 was, for example, a dry year all across Ukraine. 2003 also was a dry year, but the reason that yields were so low in 2003 had more to do with the harsh winter, which led to winterkill of the winter wheat crop. Soy represents the most unambiguous increase in yield, though as seen in Figure 11, the area under soy is not great. Wine grapes have also shown an increase in yield, even as the total area under wine grapes has decreased markedly. This may reflect increased investment in wine production, including some foreign investment, which several respondents mentioned had been happening, especially in the last several years. Finally, though vegetable yields in general have not recovered to their 1990 levels, reflecting the fact that most vegetables are cultivated on household plots, yields for commercial farmers (including joint stock companies and family farmers) were significantly higher in 2008 – roughly 29 tons per hectare instead of the average of 16.7 tons per hectare (The Kherson Oblast vegetable yield average for household plots was 13 tons per hectare). Vegetables are a summer crop, thus requiring water, so these yield increases in the commercial farming sector represent an intensification of vegetable production.
Production in irrigated areas, particularly Kakhovka Raion which has become a center for tomato, onion and cucumber cultivation.

The decision making context for crop planting decisions is now completely different from the Soviet period. The first point to make about the decision making context is that farmers in my survey made their planting decisions independently. This may seem unremarkable, but it was only 20 years ago when many farm decisions were taken off the farm by planning or communist party officials (see Pallot and Shaw 1981, 165). Furthermore, all farmer respondents from my survey made planting decisions based on sale-price versus production costs of crops in combination with crop rotation considerations. Finally, though only a few respondents spoke directly to this, the existence of viable and stable marketing channels, including export markets, naturally has an impact on the price certain crops fetch and the overall profitability of growing certain crop, in turn impacting farmers decision making. The decline in area in feed crops in Kherson can be explained in reference to the collapse of meat and dairy production in the 1990s. Although Ukrainian agriculture in general has begun to recover to 1990 levels of production, livestock production remains down, particularly in Kherson. One respondent (21) spoke of the unfavorable climatic conditions for large-scale meat (beef) and dairy production in Kherson, saying that Kherson is too hot and dry for cows, though pork production remains viable. The result is a dramatically decreased demand for feed crops. The decline in area under orchards and vineyards can be explained by the need for water, and by the general high costs of production. Horticulture and wine production had been heavily subsidized under the Soviet period. This started to changed already under Gorbachev, according to several respondents from Zmiivka (12, 14), which cultivated wine and fruit. Gorbachev instituted an anti-drinking campaign which led to decreased alcohol production across the board in the USSR. Nevertheless, the real decrease occurred in the 1990s. This is likely attributable to the withdrawal of state supports for fruit and wine production, thereby increasing production costs.

The increased production of oil crops is likely connected, at least in part, to the appearance of stable export and domestic markets for these crops. Plus, sunflowers and rapeseed are well adapted to Kherson climate. One sign of the importance of export markets for Kherson sunflower production is the dip in sunflower production evident.
around 2001, when the Ukrainian government instituted export restrictions on sunflower seeds in order to promote the domestic sunflower seed crushing/processing industry. Access to international markets was restricted, leading to decreased production. According to the USDA (USDA June 16 2004), the measure actually appears to have succeeded in promoting the domestic crushing industry. Thus, as this domestic industry has come online it would appear that domestic demand for Ukrainian sunflower seeds has substituted for the lost export markets contributing to renewed increases in sunflower cultivation. Beyond price and market considerations, it should be mentioned that sunflower grows well under the dry conditions in Kherson, though, as all respondents who cultivate sunflower stated, sunflower exhausts the soil. All sunflower growers in my survey cited the collective farm stricture that sunflower should only be grown once every six or seven years on the same land, but all said that they now grow sunflower more often, roughly every three years, testament to the importance of good price and stable marketing channels. This “pushing of the crop rotation” (to quote the USDA) is in line with what the USDA, in their agricultural monitoring, has observed elsewhere in Ukraine with respect to sunflower seeds (*Ibid*).

Rapeseed is emerging as an important crop for Ukraine, and indeed is currently the most reliably profitable crop in Ukraine, followed by sunflower seed (USDA May 20 2009). According to one respondent (respondent 20), rapeseed had just been introduced into the crop rotation at the state farm where he worked by the end of the Soviet Union, and most of the seeds for rapeseed continue to come from abroad. There is as yet no domestic rapeseed crushing or processing industry and little domestic demand, and all farmer respondents (that grow rapeseed) from my survey indicated they were growing rapeseed for export. Rapeseed growers in Kherson cultivate overwhelmingly winter varietals, which means that rapeseed benefits from the replenishment of soil moisture from non-growing season rains. Plus, rapeseed is actually the first crop to be harvested in Kherson, generally in June, depending on growing conditions. Several remarked that since they are early to market with rapeseed (with respect to European competitors) they generally get a good price for it.

The increase in commercial vegetable cultivation also represents the existence of good price and stable marketing channels, in this case primarily domestic. As mentioned above, the general crop yield statistics for all vegetables grown in Kherson Oblast hide tremendous productivity improvements among commercial vegetable growers. This development is largely attributable to the appearance of a large food processing company in Kherson Oblast, which produces ketchup, vegetable juices, and other vegetable-based sauces. This company is called Chumak, which, coincidentally was founded (and is still run) by two Swedes, who set up shop in the early 1990s, in Kakhovka Raion. Partially in connection with Chumak, the Swedish international development agency (Sida) funded an agricultural extension project which, among other things, focused on improving vegetable production. Also, the World Bank’s International Finance Corporation (IFC) has supported vegetable growers in the area. It should be mentioned however that, although one can, as related by respondents, profitably grow vegetables on relatively little land (compared to grains and oil crops), intensive, commercial vegetable cultivation would not be possible without access to irrigation, which does not exist in all
municipalities in Kherson Oblast. The lion share of fields under vegetables in Kherson Oblast are in fact devoted to household production and consumption, and here productivity has not increased significantly, especially in areas with primarily rain-fed agriculture.

The picture for cultivation of grains is not as clear as for the other crops. Export and domestic marketing channels do exist for wheat, and winter wheat is reasonably well adapted to Kherson’s dry climate, where, as with winter rapeseed, wheat can benefit from the replenishment of soil moisture during the winter. Plus, as respondents in this survey noted, winter wheat does not exhaust the soil as much as other crops cultivated in Kherson, and it is common to grow winter wheat on the same land several years in a row. But winter wheat is a vulnerable to harsh winters and late frosts. Plus, though it is harvested relatively early in Kherson – after the rapeseed harvest, usually in June depending on growing conditions – the harvest can be negatively affected by a dry spring, which is why the 2007 harvest was low. Also, in order to ensure domestic food supplies, the government has shown a repeated willingness to institute temporary export restrictions on wheat, particularly when there is a bad harvest. Finally, several respondents stated the wheat prices are lower than for other crops, and complained that the price only goes down when growing conditions are good and more wheat is produced, as happened in 2008. There do not appear to be the same problems with barley however, which is emerging as a major export crop, particularly to the Middle East (USDA March 29 2007; USDA March 28 2006). Barley is generally planted in the spring, and because it grows fast, it is, according to respondents, usually the third crop to be harvested in Kherson Oblast, after rapeseed and winter wheat in late June or early July. Barley is also a little less sensitive to dry conditions than wheat.

The overall impression is that the transition to privatized agriculture with farmers making independent decisions on what to grow based on market considerations has led to the homogenization of Kherson’s agricultural landscape. In other words, though the crop-mix has changed with area under oil crops increasing and grains decreasing relative to each other, the decrease in feed crops and orchards and vineyards has meant less crop diversity overall. This transition also led, first in the 1990s, to a de-intensification of agriculture as farms adjusted to the withdrawal of various Soviet-era input supports, meaning that farmers could not apply as much fertilizer, chemical plant protection or employ as many laborers or procure new tractors as was possible under the Soviet period. Farm land was even abandoned during this period. However, the last several years, according to all respondents in my survey, have generally been profitable, and investors have started to invest in the agricultural sector (Lerman et al 2007, 55), which has meant that farmers have been able to start to apply more inputs per land. This re-intensification however is not evenly manifested across Kherson Oblast or among different kinds of farming organizations. For example commercial vegetable production, which according to respondents is very profitable, has emerged only in those areas where there is access to irrigation. Also it is important to note that farm labor continues to decrease, so recent agricultural intensification represents more use of fertilizer and machinery or technology. Importantly, beyond the standard definition of agricultural intensification, i.e. increase inputs of labor and/or capital per unit of land, the transition to market-based agriculture in
Kherson Oblast has also entailed an intensification of agriculture as Esther Boserup defines it (1965, 43-44) – an increase in the number of times land is cropped. With the exception of farmers in Zmiivka, all respondents said that they fallowed their land less. One respondent said very clearly, while the others hinted, that that leaving land fallow was not worth it when there were profits to be made. Typically, respondents stated that more land would likely be fallowed this year due to the economic crisis. In Zmiivka, however, most respondents, citing what they believed were increasingly hot and dry summer-time conditions, said they had no choice but to fallow, otherwise they would exhaust all moisture in the soil. Even the large agricultural enterprise in the Zmiivka area practices a low-till cultivation suited to the semi-arid conditions. It would appear then that the withdrawal of state supports has reinforced dry-land farming in the Zmiivka area, regardless of farm organization.

Land use Differentiation by Farm Organization: An Illustrative Example

Finally, I wish to go beyond general yield trends to explore differentiation between different types of farm organizations. Above, I mentioned that the general trends in vegetable yields hide a significant yield increase for commercial growers of vegetables. In fact, this does not appear to be a rare phenomenon, but rather depending on the crop and location there turns out to be considerable differentiation behind the general trends. The statistics however are voluminous, and for the purposes of this analysis, I will focus on wheat and vegetable yields for joint stock farm enterprises and family farms in Kakhovka Raion – the most irrigated municipality in Kherson Oblast. Joint stock companies, as mentioned above, are of course corporate enterprises, and are a dominating organizational form among farm enterprises. Though joint stock companies are of varying sizes, as discussed above, they generally are large-scale operations. Family farms are smaller, with the average size in Kakhovka Raion being around 110 hectares (State Statistical Committee Kherson 2007).

| Table 4: Comparative Wheat and Vegetable yields Kherson Oblast and Kakhovka Raion |
|---------------------------------------------|-----------------|-----------------|-----------------|-----------------|
| 2008 | Wheat Yield* | Vegetable Yield* | Wheat Area Harvested, ha | Veg. Area Harvested, ha |
| Oblast wide average, all farm organizations | 3,28 | 16,67 | 405534,75 | 41804,40 |
| Oblast wide average, joint stock companies | 3,34 | 28,41 | 132963,19 | 3146,48 |
| Oblast wide average, family farms | 2,74 | 28,43 | 72780,66 | 3146,48 |
| Kakhovka average, all farm organizations | 4,01 | 28,29 | 18858,34 | 6497,22 |
| Kakhovka average, joint stock companies | 4,55 | 31,85 | 4975,35 | 1308 |
| Kakhovka average, family farms | 2,98 | 43,05 | 2305,09 | 1180,44 |

* Metric tons

Table 4 shows wheat and vegetable yields for joint stock companies and family farms, for Kherson Oblast as a whole and for Kakhovka Raion. As is evident in the table, the oblast average wheat yield for joint stock companies is higher than that for family farms, by a little more than half a metric ton per hectare. Meanwhile the oblast average vegetable
yield between the two farm organizations is almost exactly the same. Looking at Kakhovka Raion however, we see that the wheat yield differential is much larger: joint stock enterprises are harvesting 1.5 metric tons more wheat per hectare than family farms. Family farms have a clear advantage in vegetables however, yielding more than ten metric tons per hectare than joint stock companies.

There are of course a whole host of reasons why one farm is more productive than the other. It can depend on more or less intensive fertilizer or herbicide use, more or less efficient labor, better and more appropriate machinery, better management, better land etc… Nevertheless, I would argue that, given the rather large productivity differences evident in Table 10, the critical variable influencing the inter-farm organization wheat yield differentials seen in Kakhovka is access to water. As mentioned above, the history of agriculture in Kherson is about overcoming semi-arid conditions. Kakhovka Raion has the most extensive (and newest) irrigation system in Kherson Oblast – according to SCLR, 51% of the agricultural land in Kakhovka is irrigated. Importantly, a significant amount of this irrigation is made up of center pivot fields (See Figure 5). Also wheat, among cereals, needs the most water, while vegetable cultivation is also water intensive. As one tomato farmer in Kakhovka said to me, “a tomato is almost all water” (Respondent 17). What Table 4 then suggests is that joint stock farm enterprises are more likely to have access to irrigated center pivot fields to plant wheat than family farmers, while family farmers, all other things being equal, are concentrating what water resources they have on vegetables.

Beyond questions of water, it should be mentioned that the whole context for vegetable cultivation in Kakhovka is new. First, commercial vegetable cultivation in general is new. According to Respondent 8, none of the collective farms in the area cultivated vegetables on the scale being cultivated now. Second, as mentioned, there is a new food processing company in Kakhovka. This company, Chumak, was started by outside capital in the 1990s, and had no prior connections to other farm enterprises or any other organizations in the area. Chumak is a the most significant purchaser of vegetable produce from local growers. Third, there is a new irrigation technology being introduced – drip irrigation – which is both more suited to vegetable cultivation and less expensive and easier to install and maintain than the center pivot frigates. Finally Kakhovka in general, and family farmers there in particular have benefitted from several international financed agriculture extension projects to aid in vegetable cultivation. Sida financed one project and the World Bank’s IFC the other.

The larger point I want to make is that, given the yield differentiation seen in Table 4, joint stock companies appear able to acquire more irrigated land, which is why they have higher yields in wheat. Vegetables also require irrigation, but, because vegetable yields are generally so much higher (provided one has access to irrigation), one can cultivate vegetables profitably with less land. Plus new management methods, new local marketing channels and new technology has made it possible for smaller-scale family farmers to successfully boost vegetable yields beyond those of larger farm enterprises. In other words, this example suggests that there are advantages to large-scale farming – ability to acquire more irrigated land. This example also shows how willingness to employ new
methods and technology plus the availability of new marketing channels can benefit growers who have some access to water even if it is limited access. Recall from above the observation that many family farmers had no prior agricultural education (beyond, that is, growing up in the village), and that these farmers have instead gained knowledge from a variety of sources, including internationally funded agricultural extension services (the Sida and IFC projects mentioned above). While the greater willingness and flexibility to try new methods plus marketing channels are also available to larger-scale farmers in Kakhovka, the figures in Table 4 indicate that family farmers are exploiting these opportunities more.

The question then is, how much does this example apply to the rest of Kherson? Table 5 presents a wheat yield comparison from 2008 for all 18 of Kherson Oblast’s 20 municipalities (the other two are urban municipalities with little agriculture). Note that the percentage of cultivated fields that are irrigated in each municipality is indicated in Table 5, plus whether or not the municipality has the newer center pivot equipment and facilities. In other words, as discussed above, there is a considerable amount of irrigation in Kherson Oblast that does not employ center pivot equipment. Even in municipalities with center pivot fields, not all fields are watered through center pivot sprinkler systems, though in Kakhovka center pivot irrigation system dominates. As is evident in Table 5, the five municipalities that contain virtually all of Kherson Oblast’s center pivot fields are among the seven municipalities with the highest wheat yield differential in favor of joint-stock farm operations. The other two municipalities with the high differential are the two “driest” provinces. The average differential between the two different farm organizations for these seven municipalities is 1.31 metric tons per hectare.

In only five of Kherson’s 18 rural municipalities, is the wheat yield differential the opposite, i.e. family farmers are yielding more wheat per hectare than joint stock farm enterprises. In general these differentials in favor of family farms are not as extreme as the reverse. One of these municipalities is Beryslav where Zmiivka is located. Family farmers in Beryslav – where agriculture is mostly rain-fed – are actually more productive wheat growers per hectare than family farmers in Kakhovka. Skadolvsk and Holapristan Raions also are among these five municipalities where family farmers yielded more wheat on their farms than joint stock companies in 2008. These two municipalities present somewhat contradictory indications to the situation in Kakhovka. First, they too are significantly irrigated, suggesting that family farmers are accessing irrigated land as much as if not more than joint stock companies. However, as mentioned above, there are no center pivot fields in either of these municipalities; the irrigation system in these two municipalities predates the construction of the irrigation system in Kakhovka (respondent 21). Among other things, respondents from these areas indicated that there is a greater reliance on the use of wells as a source of water. In terms of water delivery they either use tractors to drag sprinklers across fields, or, in the case of vegetable and melon fields, drip irrigation is increasingly used. It would require further study, but a reasonable assumption is that the wheat fields in these two municipalities, while benefitting from some irrigation, receive less water overall than fields plants to wheat in Kakhovka. After all, family farmers in Skadolvsk and Holapristan are not near as productive in growing
wheat as the joint stock companies in municipalities with center pivot fields. In fact, they are about as productive as family farmers in Kakhovka.

There are several possible, overlapping explanations for this phenomenon that would have to be researched further. One is, simply, that joint stock enterprises have an advantage in acquiring center pivot fields, which is then expressed in higher wheat yields, wheat being sensitive to dry conditions. Another is that family farmers in Kakhovka and other municipalities with center pivot fields are simply specializing in vegetables. Though they grow wheat – in Kakhovka family farms plant more land to wheat than vegetables – the profit margin in cultivating vegetables is such that it is more worthwhile to devote the smaller farm’s more limited resources (in terms of labor, access to irrigation, capital, etc…) to vegetable cultivation. Over the years these smaller farmers may even have acquired more knowledge about vegetable cultivation (partly thanks to internationally financed extension projects) and specialized equipment such that, by this point, they are better vegetable farmers than wheat farmers. Table 6, which shows vegetable yield differentials in the five center pivot municipalities essentially supports both arguments. Family farmers in these municipalities plant more fields to vegetables than joint stock operations (except in Kakhovka where they plant roughly the same amount of land to vegetables), which suggests that they are specializing more in vegetables. However, they only have a yield advantage in vegetables in Kakhovka and in

<table>
<thead>
<tr>
<th>Region</th>
<th>% land Irrigated</th>
<th>Wheat Yield Family Farm</th>
<th>Wheat Yield Joint Stock Company</th>
<th>Yield Difference</th>
</tr>
</thead>
<tbody>
<tr>
<td>Verkhnorogachitskii</td>
<td>4%</td>
<td>3,08</td>
<td>2,41</td>
<td>-0,67</td>
</tr>
<tr>
<td>Skadovskii</td>
<td>49%</td>
<td>3,03</td>
<td>2,68</td>
<td>-0,35</td>
</tr>
<tr>
<td>Holopristanski</td>
<td>35%</td>
<td>2,8</td>
<td>2,55</td>
<td>-0,25</td>
</tr>
<tr>
<td>Beryslavskii</td>
<td>12%</td>
<td>3,35</td>
<td>3,19</td>
<td>-0,16</td>
</tr>
<tr>
<td>Nizhneosirogozkii</td>
<td>3%</td>
<td>3,07</td>
<td>3,02</td>
<td>-0,05</td>
</tr>
<tr>
<td>Tsyurupinskii</td>
<td>27%</td>
<td>2,67</td>
<td>2,81</td>
<td>0,14</td>
</tr>
<tr>
<td>Bilozerskii</td>
<td>27%</td>
<td>2,47</td>
<td>2,66</td>
<td>0,19</td>
</tr>
<tr>
<td>Kalanchatskii</td>
<td>29%</td>
<td>2,94</td>
<td>3,25</td>
<td>0,31</td>
</tr>
<tr>
<td>Genicheskii</td>
<td>20%</td>
<td>3,23</td>
<td>3,81</td>
<td>0,58</td>
</tr>
<tr>
<td>Velikolepetiskii</td>
<td>8%</td>
<td>2,91</td>
<td>3,5</td>
<td>0,59</td>
</tr>
<tr>
<td>Novvorontsovskii</td>
<td>8%</td>
<td>2,31</td>
<td>3,1</td>
<td>0,79</td>
</tr>
<tr>
<td>Chaplinskii</td>
<td>40%</td>
<td>2,48</td>
<td>3,32</td>
<td>0,84</td>
</tr>
<tr>
<td>Visokopilskii</td>
<td>0,30%</td>
<td>2,97</td>
<td>4</td>
<td>1,03</td>
</tr>
<tr>
<td>Velikoaleksandrivskii</td>
<td>1%</td>
<td>2,35</td>
<td>3,47</td>
<td>1,12</td>
</tr>
<tr>
<td>Ivaniv'skii</td>
<td>21%</td>
<td>2,22</td>
<td>3,6</td>
<td>1,38</td>
</tr>
<tr>
<td>Gornostaivskii</td>
<td>20%</td>
<td>2,61</td>
<td>4,08</td>
<td>1,47</td>
</tr>
<tr>
<td>Kakhovskii</td>
<td>51%</td>
<td>2,98</td>
<td>4,55</td>
<td>1,57</td>
</tr>
<tr>
<td>Novotroitskii</td>
<td>48%</td>
<td>2,15</td>
<td>3,96</td>
<td>1,81</td>
</tr>
</tbody>
</table>
one other municipality (which is just to the north of Kakhovka), while there is no vegetable yield advantage for family farmers in the other municipalities (in one municipality family farmers do not even cultivate vegetables). In the meantime, all family farmers grow wheat, even in Kakhovka, but at a significant disadvantage to joint stock operations in the center pivot municipalities, as indicated in Table 5. The amount of land under vegetables in Kakhovka compared to the other municipalities suggests a third explanation, related to the specialization argument, which is that the food processing company in Kakhovka and the lucrative marketing channels it offers are the key factor spurring productivity increases in vegetables with a disproportionate improvement accruing to the smaller, family farmers.

### Table 6: Vegetable Yield Differential in Center Pivot Municipalities

<table>
<thead>
<tr>
<th>Municipality</th>
<th>% land Irrigated</th>
<th>Vegetable Yield Family Farm</th>
<th>Vegetable Yield Joint Stock Company</th>
<th>Yield Difference</th>
<th>Family Farm Harvested Area, Ha</th>
<th>Joint Stock Harvested Area, Ha</th>
</tr>
</thead>
<tbody>
<tr>
<td>Novotroitskii</td>
<td>48%</td>
<td>49,8</td>
<td>30,64</td>
<td>19,16</td>
<td>181,7</td>
<td>45</td>
</tr>
<tr>
<td>Kakhovksii</td>
<td>51%</td>
<td>43,05</td>
<td>31,85</td>
<td>11,2</td>
<td>1180,44</td>
<td>1308</td>
</tr>
<tr>
<td>Gornostaivskii</td>
<td>20%</td>
<td>23,18</td>
<td>26,08</td>
<td>2,9</td>
<td>152</td>
<td>40,5</td>
</tr>
<tr>
<td>Chaplinskii</td>
<td>40%</td>
<td>6,26</td>
<td>31,56</td>
<td>25,3</td>
<td>243,05</td>
<td>180</td>
</tr>
<tr>
<td>Ivaniv'skii</td>
<td>21%</td>
<td>-</td>
<td>37,6</td>
<td>-</td>
<td>0</td>
<td>261,18</td>
</tr>
</tbody>
</table>

### Discussion

The purpose of this thesis was to explore a research problem concerning Ukrainian land reform and the agricultural landscape, a subject heretofore unexamined in English. Another way of expressing this purpose is that I seek to connect my empirical observations of Ukrainian agriculture – whether derived from my visits to farms and interviews with farmers in Kherson Oblast or from official agricultural statistics – to political ecology literature and literature on the role of landscape to find areas of fruitful enquiry that can explain the results of Ukrainian land reform. I have several strands of empirical observations emphasizing different aspects of agriculture in Kherson today, and in this section I will try to connect these strands to broader themes in the literature. One goal in this discussion section is to develop propositions or more precise questions that can then be researched further. Another goal is, more generally, to demonstrate the usefulness of a landscape perspective in understanding agricultural change in post-Soviet Ukraine.

### Landesque Capital

I will begin with a rather obvious point, which is that the principle features of the agricultural landscape of Kherson are in fact manifestations of Soviet landesque capital, i.e. long term land improvements intended to conserve the soil and/or boost agricultural productivity. I am referring of course to the irrigation system and the forest shelter belts, which were a Soviet response to the age-old problem of dry climate and unpredictable weather. Several discussion points follow from identifying some of the chief features of
the landscape as landesque capital. One is that, *a la* Dodghson and Widgren, such capital is likely to persist in the landscape, to exert an inertial influence on subsequent developments. One main reason landesque capital has this effect is that it has value, which can be measured in boosted agricultural production. It would have to be researched further, but this is likely one reason why the original Soviet-designed pattern of forest strips has been preserved in the landscape, i.e. that when agricultural land was divided up, it was decided to create a new geometry of ownership within the original geometry of landesque capital. This was probably a deliberate choice on the part of those implementing the reform, if not at the top level, then certainly at the local level. Various respondents referred to the influence of collective farm managers in the privatization process, and Allina-Pisano (2004) writes of the influence of local officials in the process, so it is plausible that some of the impetus for preserving the landscape came from the local level. Indeed, one almost gets the impression, and this is a statement that would require further substantiation, that collective farm chairman and local agricultural officials were most influential right at the moment of the dissolution of the collective farms, and this contributed to continuity in the landscape.

Second, a discussion of landesque capital begs the question of the land management systems and agricultural knowledge that the land improvements are a physical manifestation of. We know something about this management system: agriculture was optimally on a large-scale, to allow for, among other things, effective use of machinery. We know that there was a discourse in Soviet agronomy on the optimal spacing between shelter belts to allow for maximal moisture retention, depending on soil type, climate and the crop. Kort’s work (1988) on forest shelter belts, for example, which sums up the state of the research, cites numerous Soviet sources. Further analysis of this Soviet discourse on land management should help understand how this landesque capital was supposed to be used and how it was originally valued, which in turn can aid in understanding how local Ukrainian officials and farm managers related to this capital as the land reform was implemented. Finally, the issue of agricultural management systems and knowledge problematizes agricultural education in Ukraine today, and how and if it has changed with the times. There was an indication from my interviews that agricultural education is exerting an inertial influence on agricultural change in Ukraine, inasmuch as large-scale agriculture is what is primarily taught at the local agricultural university in Kherson. This is not intended as a criticism of this institution. Changing curriculum takes time, investment and work, and that education systems might lag behind developments in society speaks directly to Dodghson’s argument about the inertial influence of established ideas, organizations and information channels.

**Space and Things Matters**

I want to now address a general proposition put forward in the landscape literature section above, that things or space matter. In the case of Kherson Oblast, I would argue that they matter in such a way as to weaken the individual land owner’s tenure over a piece of agricultural land. Since the collective farm field layout was preserved, and farm workers became owners of a strip of land within a field, the basic geometry of ownership in a field then serves to condition what a landowner can do with his/her property, particularly, as is the case in some areas, when the land reform was carried out in such a
way to as to ensure that family members or relatives would own neighboring strips of land in the same field. In other words, what one landowner wishes to do with his/her piece of agricultural land depends, to a certain degree, on what the other land owners in that field want to do. This is even more the case in the fields which have center pivot irrigation equipment in them. While it is theoretically possible to plant a center pivot field to different crops, it is difficult in practice to use the existing equipment to suit the water needs of different crops, since different crops need different amounts of water, and they need water at different times. The result is that in practice center pivot fields generally must be planted to one crop. To put this in more theoretical terms, the existence of landesque capital in the field – in this case irrigation equipment – conditions land rights even more, creating a strong predisposition against dividing up the field into different land uses.

Several other factors work to lessen the power of landowners on land markets. One is the economic situation, and the fact that many land owners are pensioners for whom lease payments are an indispensable source of income. Another factor is that, as Demyanenko points out (2005, 50), there is essentially a “quasi-monopsony” in Ukraine’s land market – i.e. many people offering land for lease, while relatively few entities seeking land for rent. In other words, there are some seven million land owners versus roughly 60,000+ agricultural organizations (including family farmers). In France, on the other hand, which has roughly the same amount of agricultural land as Ukraine, there are 590,000 entities seeking land. Thus, the basic geometry of ownership in the fields, plus the unfavorable ratio of land owners to land operators in Ukraine, serve as basic disadvantages for landowners in relation to land-operators. In other words, the geometry of land ownership serves to weaken security of tenure, while the ratio of lessees and lessors serves to reduce the market power of land owners. Add to this the fact that many landowners are dependent on the lease income for basic livelihoods, and one can see that landowners face serious disadvantages on the land market even without the possibility that there is collusion between local officials and larger operators, and without land market restrictions inhibiting free disposition of agricultural land. With land operators setting the terms, and with continued prominence of restructured collective farms, it is no surprise then that large-scale agriculture, with whole fields being cropped to one crop as before, persists to the extent that it does.

**Differential Benefits and Burdens of Land Reform**

Third, I want to address what political ecology with its concern about the distribution of benefits and burdens of change, can tell us about agricultural reform in Kherson. As discussed above, there is an indication that large operators in Kherson Oblast are cornering access to center pivot fields, i.e. they are to some degree monopolizing these fields, excluding smaller family farmers from vital irrigation resources. This gets expressed in significantly higher yields for wheat for the bigger operators in those municipalities with center pivot fields. This begs the question of whether or not larger operators in other areas of Ukraine are able to acquire better agricultural land, which could account for, at least to a certain degree, the fact that smaller family farms have not proven more productive than larger operators. The further north one goes from Kherson Oblast, the less arid the climate becomes, and the thicker the black earth soil layer gets.
Water becomes less of a factor in other words, while the land becomes even more fertile. However, agricultural land will vary on a local level in other ways, even if in general the land is considered good quality. Thus, the slope of the land, differential drainage possibilities, different degrees of erosion or other degradation, accessibility and closeness to marketing/transport opportunities, etc… will impact farming possibilities.

It has to be said that it should not be surprising if larger operators are able to acquire better land than the smaller family farmers, given their advantages on the land market, and the widespread perception of collusion with local officials. Similar dynamics have taken place time and again, both in terms of Ukrainian and Russian history and in other places in the world. With respect to the issue of collusion, Allina-Pisano (2004) argues that the purpose of this collusion – to the extent that it is a factor – is not always, and may not be principally, pure corruption, but rather an informal policy response reflecting the real views of local level officials concerning how agriculture is optimally pursued. Be that as it may, as obvious as such a development should be, the economic literature on land reform in Ukraine does not take up this question. Also, while it is rather obvious argument to make, the dynamics of how it works would still require explanation, and there would likely be a great deal of variation depending on physical characteristics of the landscape and type of organization. Thus, in Kherson, it could be that the apparent preferential access to center pivot fields on the part of joint-stock operations is historical: that many center pivot fields are being used by successor organizations to the collective or state farm that had used those facilities earlier. The landowners in this scenario might simply prefer to lease to a known entity – the restructured collective farm – and/or there might have been official interference to help bring about such an outcome. Another way joint stock operations could secure advantageous access to center pivot fields is through their greater heft on land markets. Leasing center pivot fields costs more, and larger operations, all other things being equal, will have more capital on hand to secure leases for such land. Again, the collusion of local officials could be helping secure this outcome. Against this backdrop, the observed informality of land transactions, particularly among smaller scale farmers, may actually be a kind of defense mechanism for the smaller farmers since it help them acquire land flexibly and eases land transactions.

One complicating variable in considering such a question is the probable existence of differentiation within farm organization categories, i.e. some corporate farms will perform better than other corporate farms, and some family farmers are better farmers than others. This would probably be most notable among corporate farms, since they have more land than family farmers. Indeed several respondents referred to a nearby former collective farm, reorganized as a corporate farm, that was not performing well. There could be several reasons for this. One again is historical. Unwin (1997) argues that the farm manager, and whether or not s/he was dynamic was key to the success of collective farms during the Soviet period. To the extent then that the management of a collective farm lacked dynamism, and if this management was carried over into new corporate forms, it could explain some of the poor corporate farm performance. Also, naturally, there would be variable soil fertility and variability in other agricultural conditions on a local level that could differentiate one collective/corporate farm from the other. Indeed the two factors – management and natural farming conditions – could
influence each other. Finally, it could be the case that in those areas where corporate farming has failed to perform, for whatever reason, officials have come to look more favorably on family farmers.

Where and How Have Family Farmers Succeeded?

There is one area where family farmers have surged ahead and become more productive than their larger competitors, and this is in the area of commercial vegetable growing. Above, using Dodgshon’s theoretical approach about the inertial effect of fixed forms in the landscape, and established ideas, informational channels and organizations, a proposition was put forward that change is most likely to come from agents not connected to existing structures and organizations and therefore less committed to dominant discourses and ideas. This is also most likely to happen in areas where capital is not tied up in fixed forms in the landscape. I would argue then that the appearance of commercial vegetable farming on irrigated lands, with smaller family farmers appearing to lead this development, represents such a phenomenon. First, as noted above, family farmers tended to come from outside the existing agricultural organizations and structures, either learning by doing, and/or (in the case of some of Kakhovka’s vegetable growers) gaining agricultural knowledge from outside established information channels, i.e. internationally funded extension services. Second, the appearance of a food processor, which was started by outside capital in the 1990s, and without prior connections to other organizations and structures in Ukraine, opened up a new lucrative marketing channel for vegetable growers.

Kakhovka Raion happens to be the one area in Kherson with the most landesque capital, and therefore, according to Dodgshon, where we would expect the most landscape inertia. At first sight then it seems a strange area for the development of commercial vegetable cultivation, relying on smaller-scale producers, to take place. There could several explanations for this. One is that commercial vegetable cultivation began when the economic and agricultural crisis was at its worst – in the mid to late 1990s. It could have been the case that some center pivot fields were idle during this period, and therefore easier to access for new farming actors. Another possible explanation concerns the introduction of a new technology – drip irrigation – which is relatively cheap and easy to install and therefore accessible for family farmers (who do not have the financial resources of the larger operators). Drip irrigation may be allowing for more flexible irrigation regimes, either bypassing active center pivot fields in general and/or irrigating parts of larger fields as needed. One respondent (8) from Kakhovka said that his family owned part of a field with a non-functioning frigate. They do not care however since they use drip irrigation in the field. While the case of vegetable cultivation in Kakhovka, and the rise of family farmers there, appears in general to conform to Dodghson’s thesis on landscape and organizational inertia and change, these scenarios required further research.

Conclusion

In conclusion I want to return to Vogeler’s comment (1996, 455) on the irony that the collective farm field layout in Eastern Germany proved so adaptable to modern, capitalist, industrial agricultural production. Ultimately, I believe, this relates to a
discussion on ideal parcel size and farm size and tenure to facilitate agricultural production. Early in the 20th century, Russian reforms sought to increase farm size and parcel size to boost production. Soviet decision-makers ramped up this ambition to enlarge farming units by several orders of magnitude. While there was a desire among the early Soviet leadership to create parcels more amenable to modern machinery, there was also an element of ideology: big is better. There were some truly grandiose schemes in the early days, including Stalin’s plan to build one interconnecting network of forest shelter belts across the Ukrainian and Russian steppe (Symons 1972, 295). Such ambitions were scaled back in the post-Stalin era, but the quest remained to create what Soviet agronomists and farm managers considered ideal working land parcels. Various factors affected parcels size: (1) Soviet agriculture relied on heavy and large tractors and combines which favored larger fields; (2) The black earth soils, though fertile, required, extensive conservation measures, such as forest shelter belts. There is an optimal distance between shelter belts depending on the crop and other conditions of the natural environment, so this would affect the size and shape of the fields. While decisions on what to grow were made centrally, collective farm managers and agronomists had authority to adjust parcel shape and size (according to respondent 6 and Symons 1972, 303). The point I am trying to make is that, while Soviet ideology no doubt played a role in determining farm and parcel size, so increasingly did technical criteria, the machinery base, and onsite farm managers and specialists.

I would like to contrast the Soviet case with that of the United States, or rather the agricultural landscape of the Midwest of the United States. At first glance one would think that no two landscapes could be more dissimilar. As Johnson (1976) writes, the agricultural landscape in the American Midwest bears the unmistakable imprint of the Federal Land Survey from the early 1800s, which platted out the landscape into nested squares, in many cases regardless of topography. One reason for this was to aid settlement of the region. The purpose of the survey, in other words, was to create optimal ownership parcels of land. These parcels were overtime adjusted down in size until the 40 acre (16 hectares) allotment became standard (further west, because of the abundance of land, allotments were larger). This was inexpensive enough to make it possible for a critical mass of prospective settlers to purchase land. This pattern in the landscape, plus the absolute ownership rights given to the owners, would later create problems when, for example, conservation measures needed to be promoted on a watershed or regional level, or when modern planners needed to deal in land units bigger than 16 hectares (Johnson 1976, 200, 222). However, it should be noted that these ideal ownership parcels have not prohibited the increase in the average American farm size, a common mechanism for this being when successful farmers acquire neighboring farms.

The larger point I want to make with this comparison is a question. The American agricultural landscape was designed to create optimal ownership parcels to encourage settlement of frontier land. The Eastern European socialist landscape was designed to create optimal working parcels in order to make the most efficient use of machinery and otherwise exploit (what they hoped would be) economies of scale. The original American landscape pattern has not prevented the long-term processes of farm enlargement and mechanization, even as that original small-settlement remains imprinted in the landscape.
in some places.\textsuperscript{18} The privatization of agricultural land in Eastern Europe and the liberalization of the agriculture sector has not resulted in significant changes to the landscape, nor has it (at least in some eastern European countries) significantly reduced the dominance of large-scale farming even if the fields now have new owners, farms are organized as business entities, and average farm size, in Ukraine in any case, is coming down. The question is, do these trends represent a convergence towards what modern, global capitalism considers an optimal farm size, at least with respect to arable agriculture? Ukraine might not be the best example, since the continued dominance of large-scale farming may have more to do with the preferences of local agricultural officials working hand in hand with farm managers, though it has to be said that large-scale farming in Ukraine is (today) by and large profitable. Also, the privatization and liberalization processes in Estonia and eastern Germany were even more thorough than in Ukraine and yet large-scale agriculture and the collective farm landscape persist. If the answer to the above question is yes, it suggests that parcel-size and tenure are not so important factors since parcel sizes and tenure systems between (and now within) Eastern Europe and North America vary greatly. What is important is the standardization of the landscape into manageable shapes that allow for the use of machinery and allow for scaling up (and down) operations as needed, plus a tenure system that, if it falls short of allowing or guaranteeing private ownership, still guarantees some security over a long term in using agricultural land. It would also suggest that the Soviet and Eastern European specialists, particularly in the period of mature socialism, knew what they were doing in designing an agricultural landscape that would be well suited to modern, industrial farming. It is common, since the fall of communism, to reject Soviet models in variety of spheres, particularly relating to the economy and production. Perhaps it is time to re-evaluate that attitude, at least as far as it relates to agriculture.

\textsuperscript{18} The subject of farm size in the United States is a large one with an extensive literature. The average farm size in the United States is 418 acres, or 170 hectares. The United States however is diverse, with small farms concentrated on the east coast, and larger farms in the west. Thus the average farm size in South Dakota, a state whose economy is based primarily on agriculture, is 1,396 acres or 565 hectares. The overall average farm size in the US has stagnated over the last 10 years, though the long-term trend is towards farm enlargement. Thus average farm size in Iowa has grown by 100% since the 1950s, from about 170 acres (69 hectares) to 333 acres (135 hectares). See \url{http://www.nass.usda.gov/Charts_and_Maps/Farms_and_Land_in_Farms/fncht6.asp}, and \url{http://www.soc.iastate.edu/extension/transition.html}. 
References

Books and Articles


Other Sources

Kherson Agricultural Statistics
I purchased statistical yearbooks and other reports from the Kherson branch of the Ukrainian State Statistical Committee (SSC). The price list for these yearbooks or reports can be found in the Kherson SSC catalogue which can be downloaded at the following website (Ukrainian only):

Note that these reports must be purchased in person. Another source of statistics was the Kherson State Committee on Land Resources (SCLR), where I was given a 2009 statistical overview. I was also given statistics by several researchers, but the original source of their statistics was either the Kherson SSC or the Kherson SCLR.

Current status and perspectives on the development of land resources in Kherson Oblast, Kherson SCLR 2009.


Online US Department of Agriculture (USDA) Reports
The USDA publishes numerous reports on worldwide agricultural reports, available at the following web-page: http://www.pecad.fas.usda.gov/search.cfm. Specific reports cited in this thesis are listed below.


Interviews
I conducted a total of 20 interviews while in Kherson with a total of 21 people. One condition of the interview was that interviewees would remain anonymous. Tables 1 and 2 offer somewhat more information on the interviews.