

Yelto Zimmer

Leasing and purchasing arable land -  
legal rules, profitability and investor's view

# Leasing and purchasing arable land - legal rules, profitability and investor's view

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## Introduction

Leases and prices for land have always been a hot topic at agricultural coffee shops, but the prices mentioned are sometimes growing as hunts in hunter's cock-and-bull stories. But politics are more and more aiming at so-called "non-agricultural investors" and their increasing interest in agricultural land markets.

In view of this background, the article below will take the following path: The first step outlines fundamental economic contexts of land leases and purchase prices. Different leasing systems and payments are introduced, compared and economically analyzed in the following. Finally, the aim is led towards a question: What are the reasons for the newly increased interest of non-agricultural investors in land markets?

## Land markets - the concept of classic (agricultural) economists

Adam Smith taught us at the end of the 18<sup>th</sup> century that the worth of land is the *residual value* between the income from sales of products and the cost of needed inputs and required working time (and invested capital) – this is what is called "*return to land*". Further differentiation of this analysis comes from Ricardo at the beginning of the 19<sup>th</sup> century and concentrates on an increasing demand for food and the step-by-step cultivation of initially unproductive land. According to this, land of different quality (i.e. productivity) is generating a different return to land. As land is, at least regionally, not expandable and the owner consequently a "monopolist", he can get, within the (for him) most favorable scenario, the whole return to land as lease.

But in contrary, that can signify, that agricultural land owners can demand, basically and on the long run, only as much lease as farmers can create values or return to land. Thus, fluctuating prices for agricultural products and/or inputs result in a fluctuating return to land and ultimately

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in changes in lease rates. I.e. the faster leases can be adapted to changing price/cost ratios, the faster changes in return to land are converted to changed leases. The longer these adaptation processes take, the higher the probability, that in case of increasing agricultural prices, farmers profitably lease the land. In case of decreasing producer prices, the risk of losses, i.e. the return to land becomes less than the payment of lease is increasing.

A second problem: What is the agricultural entrepreneur? One is very competent in agronomy and a good businessman, too - i.e. he has better yields, pays less for inputs as fertilizers and achieves better prices for his wheat than his neighbor. In short: he is able to generate a higher return to land. On the other hand, the clever landlord researches possible revenues and expenditures of (supposedly) good farmers and adapts his lease demands to the return to land that should be able to achieve. Conversely, that implies that on the long run, there will always be farmers who have to pay leases above their achieved return to land. The result can be a situation, where they are not able to completely remunerate their own factors of production (land, capital) or have to be satisfied with lower returns to their on labor than the opportunity cost<sup>2</sup> in order to be able to pay the landlord. Such an internal cross-subsidization comes to an end when the remaining remuneration of family work, land and capital is not sufficient for an "acceptable" standard of living for the farmer's family.

That's as far as theory goes. But what about systems of land lease, land prices and their profitability in a global perspective? To give an overview about the most important different systems and economics of land use, lease- and sales markets in Germany, the USA, Canada, Brazil, Argentina and Russia are analyzed below. The profitability analysis is based on data of typical farms within the global **agri benchmark** Cash Crop network.<sup>3</sup> For certain, the Russian farm is much more successful than the average Russian farm, as there are numerous former Soviet collective farms (kolkhozes) neither willing nor able to participate in such a comparison of farms.

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<sup>2</sup> This might be in case of e.g. part-time farmers, who cannot expand his dependent employment because of industrial law and has - for this reason - much lower opportunity costs.

<sup>3</sup> Please find details and background information about the concept of agri benchmark and the data of typical farms at: [www.agribenchmark.org/agri-benchmark/value-and-approach.html](http://www.agribenchmark.org/agri-benchmark/value-and-approach.html).

## Land lease - how does it work?

There are two different kinds of leasing contracts: sharecropping and “normal” lease. Sharecropping means that lessee and lessor share the achieved production at a certain percentage or a fixed amount of the output is paid as lease. The monetary value of the lease is a result of quantity multiplied with an agreed price (e.g. the listing on the commodity exchange) or with the price the lessor can achieve. These systems are customary e.g. in Latin America (see [Table 1](#)).

Furthermore, there are special types of sharecropping, where the lessor shares parts of the financial risks of production by paying a percentage of the expenditure on seeds, fertilizers and crop protection. These types of lease can be found e.g. in the northern states of the US, where the risks of production are relatively high.

**Table 1:** Characteristics of selected lease and land markets

	Brazil	Argentina	Canada	USA (Iowa)
Maturity lease contracts	3 – 7 years	1 year	2-3 years	1 year
Land lease rates	160 - 600 USD/ha	550 USD/ha	90 – 140 USD/ha	600 USD/ha
Revenue risk sharing with landlords	yes	yes (partially)	no	¼ of rented land
Cash vs. sharecropping	90+ %	100 %	100 %	80 %
Ownership vs. rented land	95+ %	50 %	70+ %	45 %
Land prices	3,000 to 10,000 USD/ha	6,000 to 35,000 USD/ha	1,500 bis 5,000 USD/ha	18,000 USD/ha
Increase land prices	2003 - 2013: + 150 %	2000 - 2011: + 300 %	2006 - 2011: + 35+ %	2002 - 2012: + 260 %

Source: *agri benchmark* Cash Crop, 2013

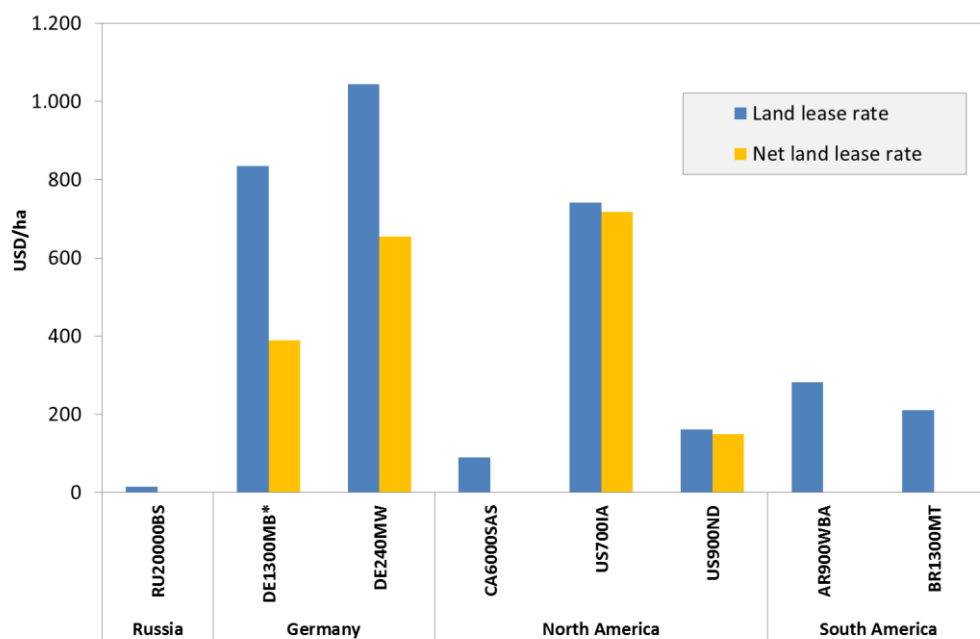
A second important characteristic for differentiation of leasing contracts is their maturity. Sharecropping has an “automatic” implementation due to its linkage with current output prices. “Normal” leases have different maturity periods. That results in a time lag in adapting leasing rates to changed economic circumstances. Whereas in Germany and Western Europe maturity periods usually range between five and twelve years, in many other western countries - in developed as well as in emerging countries - the periods are clearly shorter, between one and three years (see [Table 1](#)). At the other end of the scale, countries as Russia can be found, where many leasing contracts are concluded for up to 49 years.

As evident in [Table 1](#), the much bemoaned raise of purchase prices, is not a German specialty. In contrary: prices for land in Argentina and the US have about tripled since 2000. According to official statistics, that seem to significantly underestimate the real development, between 2005 and 2011 prices for land in the West Germany have only increased about 30 %, in East Germany about 120 %.

### Land leases - what do farmers pay?

To get an impression of the lease for farmers in the different countries, [Figure 1](#) shows the lease paid by *agri benchmark* farms. The farm’s names are to be interpreted as follows: The first two letters signify the country, the number is the farm’s size in ha and the letters at the end indicated the region<sup>4</sup> where the typical farm is located. These case studies from typical farms are to show basic structural differences. There is no claim to present representative data for the respective country.

**Figure 1:** Land lease rates for selected *agri benchmark* farms 2011 (USD/ha)



Source: *agri benchmark* Cash Crop, 2013

<sup>4</sup> BS: Black soil region, MB: Magdeburger Börde, MW: Mittel-Weser, SAS: Saskatchewan, IO: Iowa, ND: North Dakota, WBA: Western Buenos Aires, MT: Mato Grosso.

The overview shows the lease paid as well as the so-called net-lease. The latter is the result, after direct payments of the government have been deducted. The overview shows, that the resulting cost-decreasing effect is monumental in Germany, whereas it is small for the two US farms. Finally, it should be noted, that net-leases of German farms are partially much cheaper as for the US-farm in Iowa.

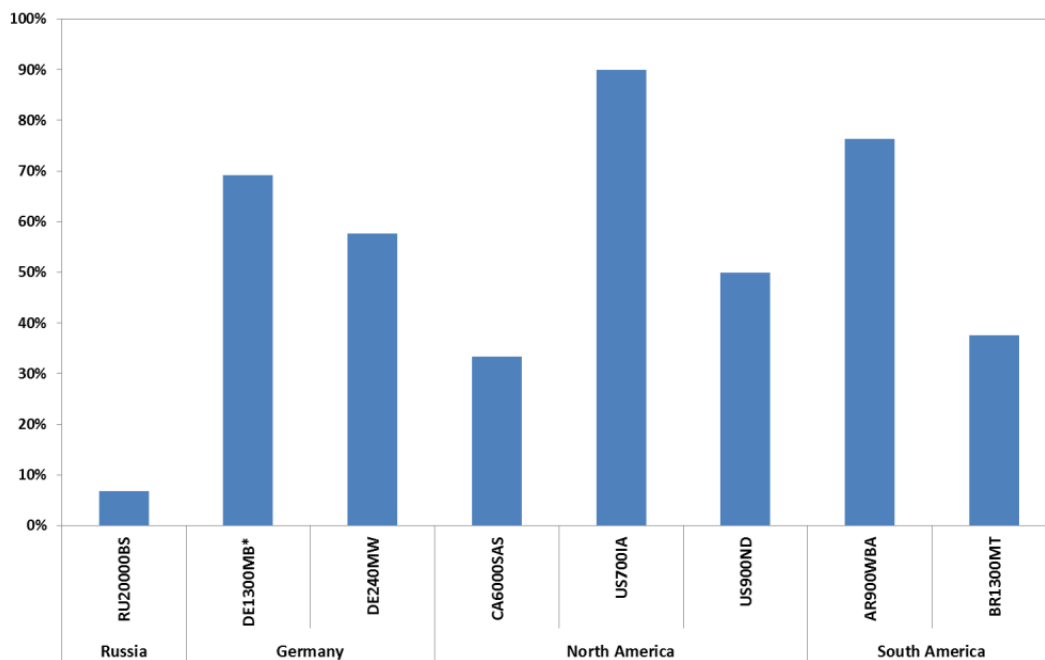
The very high lease for the German farm in the region "Mittelweser" can be explained with the high importance of very profitable crops such as potatoes and sugar beet and the high density of livestock industry on the other hand. As tax and environmental jurisdiction define maximum quantities of livestock per ha, this results in livestock producers leasing land at about every condition. This way they transfer parts of the created value in animal husbandry to the landlords. These circumstances lead to a lasting and considerable increase of lease prices above the return to land that can be realized in arable farming.

In view of the direct payments it should be noted that they are actually not important in the compared countries outside Germany. However, this should change in case of Russia, soon. This change is caused by the fact that currently high agricultural subsidies (keyword: interest cuts), that will - at least partially - be converted into direct payments in the course of Russia's accession to the WTO. Finally, the [Figure 1](#) shows that in Russia, compared to the rest of the sample, lease is rather symbolic. The reason is the very low competition for land: until quite recently, Russia had extensive areas of land being idle. The heavily shattered land-ownership in Russia aims into the same direction.

### **Leasing land - what about profitability?**

To be able to economically assess the documented lease, [Figure 2](#) compares it to the average return to land generated in 2008 to 2012. The return to land is equaled to 100 (red line) and the leases paid are displayed as a percentage of the return to land. When determining the return to land, according to the *agri benchmark* concept the full economic cost was considered, i.e. used family input (labor, capital) was rated with its opportunity cost. The cost of capital assets was calculated as well at its opportunity cost, which is the interest generated from a long-term bank deposit. The result is that the shown return to land is considerably lower than the result from an ordinary profit and loss statement.

**Figure 2:** Lease rate in relation to the return to land  
(2011 - including direct payments)



Source: *agri benchmark Cash Crop*, 2013

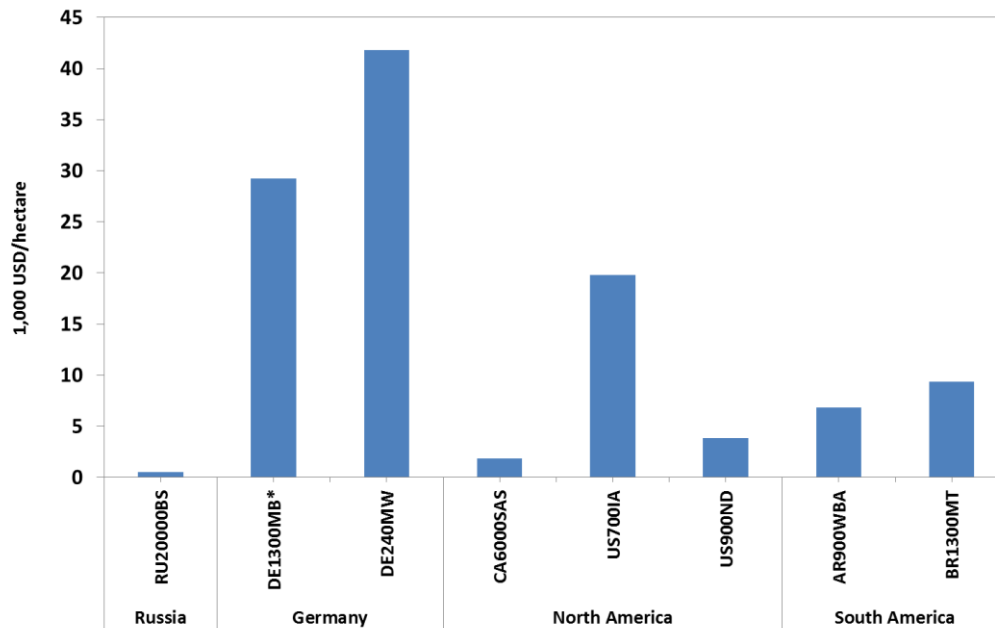
From [Figure 2](#), one can see that both German farms have to pay about 50 to 60 % of their return to land as lease. This is significantly below the share the farms in Iowa and Argentina have to pay. Landlords of farms in Brazil and Canada gain a smaller share of the agricultural value creation. The Russian farm is in a completely different league - but as already mentioned, this is related to the choice of the farm.

In general, it is to be concluded, that the international comparison shows that German leases are not exceptionally high. Nevertheless, it should be considered, that in Germany - differently than in other countries (except for Russia) - leases are generally fixed for eight years or more. As soon as the producer prices decrease, this will develop against the farmer. A reduction of income of only 15 respectively 25 per cent with today's leases will make the two German farms pay more than 100 % of the return to land generated to their landlords. Contractual adaptation clauses in land lease contracts for the case of sustainable deterioration of the general economic conditions can only provide very limited protection against this development.

## And farmland as investment?

But arable land is not only leased, it is bought, too. And not only active farmers buy farmland, but so do investors. Against this background, [Figure 3](#) initially shows the usual purchase prices in the regions discussed.

**Figure 3:** Purchase prices for arable land (2011 - 1,000 USD ha)



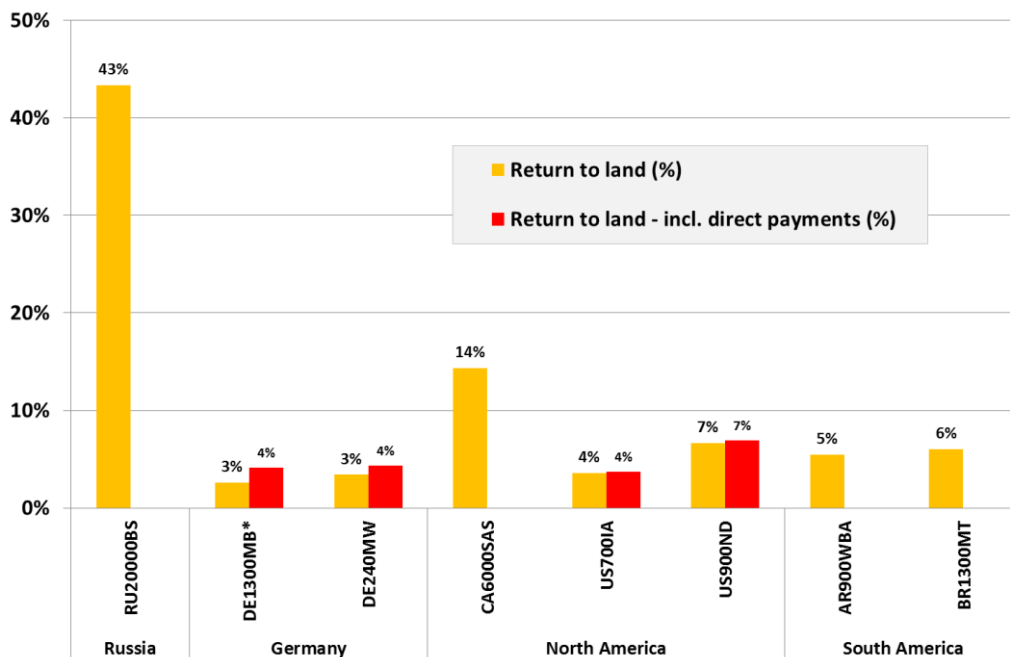
Source: *agri benchmark Cash Crop, 2013*

At first view prices for arable land seem, compared to leases, particularly expensive for the German farms. With about USD 20,000 per ha, only the farm in Iowa ranges at similar levels. Exceptionally low land prices are paid in Canada; purchase prices in Russia are even “alien”.

To get an impression, whether these purchase prices are high or low, the next step (see [Figure 4](#)) will show the return to land - with and without direct payments - as interest on capital invested in land (i.e. purchase prices).



**Figure 4:** Average annual return to land as interest on capital invested in land (2011)



Source: *agri benchmark Cash Crop*, 2013

According to the data, German farmland is not exceptionally expensive in comparison to the US - the farm in Iowa is with 4 % at the same level. Only the farm in North Dakota is able to produce a return to land of 7 %. Additionally, taking into account direct payments in Germany raise the profitability of land use by about one percentage point, while with additionally 0.1, respectively 0.3 percentage point direct payments are of nearly no importance to the US farms.

As expected, in Argentina and Brazil the return to land is higher than in Germany and the US. But under consideration of risks (e.g. political instability, exchange rate) the difference does not seem to be huge. The return to land for the farms in Canada and especially in Russia is exceptionally high. For the Russian farm, the particular risks (keywords: politics and weather) might explain a big part of this “premium”, but there is no such explanation for Canada. The only possible explanations are the restrictions for foreign and institutional investors to the Canadian land market. These might lead to lesser competition for land compared to e.g. the US.

Examining the possible interests from the view of an investor, the following points have to be taken into consideration:

- Alternative investments in 2008 and subsequent years with considerable economic uncertainty have either generated unusually low interests (keyword: negative interests for German government bonds) or involve major risks.
- A commitment to arable land is either very little or even not at all correlated with general economic risks. This way for investors' investment in arable land can be an element of risk management.

As a consequence, it is obvious, that since the banking and currency crisis and the considerable increase of agrarian commodity prices after 2008, the interest of institutional investors in the agricultural land market has increased. Especially, when e.g. life insurances - because of risk preferences of their investors - prefer exceptionally low risk investments.

### **Synopsis and conclusion**

- (1) At first view, in international comparison, leases for land in Germany seem to be very high.
- (2) Considering (a) differences in economic land productivity and (b) direct payments, German leases are even low in international comparison.
- (3) Against this background, it does not seem to be likely, that leases might decrease considerably in case direct payments will be reduced.
- (4) Possible returns for an investment in arable land are rather attractive in times of exceptionally low interest in the western world.
- (5) Whether or not investors have to be involved in operations in order to capture value is rather different for different countries. While in the US and Argentina the landowners tend to be able to capture the bulk of return to land (without being exposed to a major risk associated with operations) this is not true for the farms in Russia, Canada or Brazil.
- (6) Downright astronomically returns for arable land use of the Russian farm have to be seen in the light of major political and currency risks (keyword: Crimea crisis) and higher production risks (keyword: drought).

## Published *agri benchmark* Working Papers

### **Report on the Workshop on the South East Asian *agri benchmark* Rice Network**

Working Paper 2014/5, Nguyen NL.

[www.agribenchmark.org/fileadmin/Dateiablage/B-Cash-Crop/Working-Paper/cc-1305-RiceWS-Luan.pdf](http://www.agribenchmark.org/fileadmin/Dateiablage/B-Cash-Crop/Working-Paper/cc-1305-RiceWS-Luan.pdf)

### **German rapeseed on the verge of collapse? Consequences of a new EU biofuel policy**

Working Paper 2013/4, Zimmer Y.

<http://www.agribenchmark.org/fileadmin/Dateiablage/B-Cash-Crop/Working-Paper/cc-1304-EU-biofuel-YZ.pdf>

### **China's Corn Production - Where to establish *agri benchmark* farms in corn?**

Working Paper 2013/3, Hu X; Zimmer Y.

[www.agribenchmark.org/fileadmin/Dateiablage/B-Cash-Crop/Working-Paper/cc-1303-China-XH-YZ.pdf](http://www.agribenchmark.org/fileadmin/Dateiablage/B-Cash-Crop/Working-Paper/cc-1303-China-XH-YZ.pdf)

### **Speciality crops - A perspective for Kazakh arable producers?**

Working Paper 2013/2, Zimmer Y; Börsch M.

[www.agribenchmark.org/fileadmin/Dateiablage/B-Cash-Crop/Working-Paper/cc-1302-Kazakhstan-YZ.pdf](http://www.agribenchmark.org/fileadmin/Dateiablage/B-Cash-Crop/Working-Paper/cc-1302-Kazakhstan-YZ.pdf) ([English Version](#));

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### **Rapeseed in Central and Eastern Europe - A lot of room for growth**

Working Paper 2012/1, Zimmer Y.

[www.agribenchmark.org/fileadmin/Dateiablage/B-Cash-Crop/Working-Paper/cc-1201-rapeseed-YZ-en.pdf](http://www.agribenchmark.org/fileadmin/Dateiablage/B-Cash-Crop/Working-Paper/cc-1201-rapeseed-YZ-en.pdf) ([English Version](#));

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