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## Management of soil rational use in the context of european integration

**Scientific problem.** In terms of scope of application the term «management» can be considered the most common, as I. V. Koshkalda noted, it is used to characterize any system – economic, social, technological, biological and so on. In the case of land management, this process aims to ensure the rational use and protection of lands. Probably we should accept the fact that currently Ukraine does not have any effective mechanism for land management and land use, which lowers efficiency and competitiveness not only of the individual but also the national economy as a whole [1].

**Analysis of recent researches and publications.** In world practice, the system of land management (Land Administration Systems – LAS) is divided into three types: classic (implements the principle «from general to specific»), transitional period (based on the principle «from the particular to the general») and integrated multifunction [2]. Experts of Global Soil Partnership (GSP) developed and offered to participating countries, including Ukraine, which joined the partnership in 2014, a program for sustainable management of soil resources (Sustainable Soil Management – SSM). Obviously, the sustainable management of soil can be considered as a subsystem of Land Management. The main purpose of soil fertility management system is a suspension of degradation processes, increasing productive and ecological functions of land, targeting modern transformation of soil into the mainstream of development and extended fertility reproduction, contributing to sustainable development of land use [3].

**The objective of the article** – to highlight the results of the study on management of the

rational soil use in the context of European integration on the basis of benchmarking intensification of land use.

**Statement of the main results of the study.** In the basis of management of rational soil use in the context of European integration we suggest a conceptual approach to competitiveness management on the basis of the latest benchmarking as a new vision of process of focused system influence on the formation, maintenance and development of competitive advantages based on the ideology of permanent comparison with the standards of the subject, detected by monitoring the competitive environment that allows viewing of content characteristics of the main objects of strategic management, continuously improve themselves and move from methods of situational competitiveness management to management of trends [4, p. 5].

Actually benchmarking – is an alternative method of strategic planning, which is defined by analyzing the performance of competitors. Benchmarking technology combines into a single system development strategy, industry analysis and competitor analysis. While benchmarking is a useful and effective tool for management at all levels (micro, meso, macro level), it is not used enough, mainly because little idea about it or complete ignorance of its methods [5].

Therefore, in this study we examine the main indicators of the effectiveness and efficiency of intensification of land use in the agricultural sector in comparison with international benchmarks. The purpose of this comparison – to determine Ukraine's place in relation to the most effective («world leaders») and medium («standard») countries on the development of the agricultural sector. In particular, for the benchmarking study it was selected advanced countries such as the UK, Germany, Poland, the USA and France. The experience of the EU and

USA in this regard is not only a scientific interest, but also a number of practical features, especially towards effective intensification of land use and reproduction of soil fertility in agribusiness.

The program of benchmarking is aimed at introducing best practices and to draw management attention to measures to improve the effectiveness (resultant) and efficiency of intensification of land use (Table 1).

**Table 1. International benchmarking of the effectiveness (resultant) of land use intensification in some countries**

Indicators	Year								Trend
	2000	2005	2008	2009	2010	2011	2012	2013	
Great Britain									
Productivity, c/ha: grain	69.4	71.9	72.8	68.4	67.8	68.5	60.6	64.8	$y = 73.5 - 1.22 t$
sugar beets	539.6	574.3	626.8	700.0	553.1	752.6	607.6	683.8	$y = 554.4 + 16.74 t$
potatoes	399.8	424.5	416.6	431.1	438.8	432.2	305.6	401.4	$y = 434.6 - 6.30 t$
Produced on 100 ha of agr. land, c: meat of all kinds in slaughter weight	205.9	194.1	192.1	202.3	191.9	209.3	209.3	209.3	$y = 194.2 + 1.68 t$
milk	852.9	858.8	774.0	763.0	814.0	825.6	808.1	808.1	$y = 832.4 - 4.30 t$
Produced on 100 ha of arable land, c: grain	4203.4	3736.8	4150.0	3816.7	3616.7	3623.0	3258.1	3322.6	$y = 4270 - 123.1 t$
sugar beets	1576.3	1491.2	1250.0	1383.3	1083.3	1393.4	1177.4	1290.3	$y = 1515 - 41.00 t$
Produced eggs on 100 ha of grain crops, c	181.8	206.9	181.8	193.5	200.0	225.8	193.5	225.8	$y = 180.8 + 4.52 t$
Germany									
Productivity, c/ha: grain	63.8	66.2	70.7	71.6	66.6	64.0	68.5	72.7	$y = 65.4 + 0.580 t$
sunflower	24.7	24.8	19.6	24.1	18.9	19.9	23.8	21.0	$y = 24.0 - 0.42 t$
sugar beets	616.6	601.9	622.9	675.7	638.5	743.0	688.6	638.7	$y = 604.4 + 10.8 t$
potatoes	449.9	419.8	437.6	440.6	399.8	456.1	447.6	398.3	$y = 442.3 - 2.47 t$
Produced on 100 ha of agr. land, c: meat of all kinds in slaughter weight	368.4	405.9	455.6	461.5	491.0	503.0	491.0	491.0	$y = 380.5 + 17.3 t$
milk	1660.8	1623.5	1698.2	1656.8	1778.4	1814.4	1826.3	1862.3	$y = 1585 + 34.5 t$
Produced on 100 ha of arable land, c: grain	3872.9	3873.9	4226.9	4201.7	3788.1	3546.2	3830.5	4067.8	$y = 3996 - 15.6 t$
sugar beets	2364.4	1974.8	1932.8	2176.5	1983.1	2487.4	2347.5	1932.2	$y = 2133 + 3.67 t$
Produced eggs on 100 ha of grain crops, c	128.6	117.6	114.3	101.4	106.1	123.1	123.1	138.5	$y = 112.0 + 1.52 t$
Poland									
Productivity, c/ha: grain	25.2	31.4	32.1	34.6	32.2	33.3	36.8	37.7	$y = 26.7 + 1.38 t$
sunflower	15.9	17.1	17.8	18.1	15.1	18.7	17.6	17.5	$y = 16.5 + 0.160 t$
sugar beets	394.3	383.3	464.8	542.6	483.1	573.6	582.5	546.8	$y = 371.5 + 27.7 t$
potatoes	193.8	185.2	197.6	198.5	178.6	204.7	243.8	187.8	$y = 185.2 + 3.00 t$
Produced on 100 ha of agr. land, c: meat of all kinds in slaughter weight	157.6	207.5	191.4	205.0	239.7	243.2	262.1	262.1	$y = 157.1 + 14.2 t$
milk	646.7	779.9	765.4	776.4	842.5	837.8	875.9	875.9	$y = 673.2 + 28.2 t$
Produced on 100 ha of arable land, c: grain	1614.3	2181.8	2222.2	2416.0	2513.8	2351.4	2642.2	2642.2	$y = 1788 + 118.8 t$
sugar beets	935.7	909.1	690.5	864.0	917.4	1054.1	1128.4	972.5	$y = 800.1 + 29.7 t$
Produced eggs on 100 ha of grain crops, c	45.5	60.2	69.8	70.6	75.9	77.9	65.8	78.9	$y = 52.5 + 3.47 t$
USA									
Productivity, c/ha: grain	58.0	63.5	65.4	71.4	68.6	67.5	58.5	72.4	$y = 61.4 + 0.944 t$
sunflower	15.0	17.3	16.0	17.4	16.4	15.7	17.0	15.5	$y = 16.3 + 0.012 t$

Continuation of table 1

sugar beets	531.3	500.4	599.9	576.1	621.1	533.9	655.8	637.4	$y = 508.8 + 16.3 t$
potatoes	427.1	434.9	444.4	462.7	443.1	421.7	458.2	466.1	$y = 428.6 + 3.6 t$
Produced on 100 ha of agr. land, c: meat of all kinds in slaughter weight	90.7	96.2	103.1	101.1	102.7	103.3	104.0	104.2	$y = 93.4 + 1.62 t$
milk	183.4	195.0	208.1	208.7	212.9	216.4	222.4	223.4	$y = 184.9 + 5.31 t$
Produced on 100 ha of arable land, c: grain	1962.9	2226.5	2485.6	2629.9	2530.0	2423.8	2316.6	2829.1	$y = 2092 + 74.2 t$
sugar beets	168.2	152.0	149.6	167.0	182.1	163.5	206.3	193.4	$y = 145.7 + 6.00 t$
Produced eggs on 100 ha of grain crops, c	85.5	93.3	86.9	91.4	93.9	95.2	89.7	93.0	$y = 87.8 + 0.737 t$
France									
Productivity, c/ha: grain	71.0	67.1	72.4	73.9	69.5	67.0	74.4	70.0	$y = 70.2 + 0.106 t$
sunflower	25.2	23.4	25.4	23.7	23.6	25.4	23.1	20.5	$y = 25.6 - 0.411 t$
sugar beets	759.0	773.2	868.2	937.6	830.6	969.3	864.8	854.0	$y = 786.4 + 15.7 t$
potatoes	395.6	420.6	417.3	420.6	397.5	485.6	411.1	434.0	$y = 401.2 + 4.80 t$
Produced on 100 ha of agr. land, c: meat of all kinds in slaughter weight	118.4	112.9	100.2	100.2	105.6	103.8	103.8	102.0	$y = 113.6 - 1.72 t$
milk	468.1	475.4	460.8	440.8	440.8	460.8	453.6	448.1	$y = 469.4 - 2.96 t$
Produced on 100 ha of arable land, c: grain	2267.6	2182.4	2419.8	2426.6	2312.7	2288.7	2496.5	2371.5	$y = 2250 + 21.3 t$
sugar beets	1040.1	989.9	1034.1	1198.0	1096.2	1309.3	1170.1	1166.7	$y = 991.0 + 29.9 t$
Produced eggs on 100 ha of grain crops, c	109.9	108.7	93.8	95.7	91.8	82.5	95.7	95.7	$y = 107.6 - 2.41 t$
Ukraine									
Productivity, c/ha: grain	19.4	26.0	34.6	29.8	26.9	37.0	31.2	39.9	$y = 21.3 + 2.07 t$
sunflower	12.2	12.8	15.3	15.2	15.0	18.4	16.5	21.7	$y = 10.8 + 1.12 t$
sugar beets	176.7	248.2	356.2	314.9	279.5	363.3	410.8	399.0	$y = 192.4 + 28.0 t$
potatoes	121.6	128.4	138.7	139.3	132.5	168.0	161.0	159.7	$y = 116.3 + 6.02 t$
Produced on 100 ha of agr. land, c: meat of all kinds in slaughter weight	40.9	38.5	45.7	45.7	50.5	50.5	53.0	57.8	$y = 36.6 + 2.5 t$
milk	305.3	329.3	283.7	278.8	269.2	266.8	274.7	277.1	$y = 314.0 - 6.32 t$
Produced on 100 ha of arable land, c: grain	751.5	1169.2	1640.0	1415.4	1209.2	1744.6	1421.5	1941.5	$y = 892.0 + 115.5 t$
sugar beets	404.9	476.9	412.3	310.8	421.5	575.4	566.2	332.3	$y = 408.7 + 6.41 t$
Produced eggs on 100 ha of grain crops, c	36.8	53.3	57.7	57.0	66.2	70.1	71.4	71.4	$y = 40.2 + 4.51 t$

Source: Author's calculations based on [6; 7].

Analyzing the effectiveness (resultant) of land use intensification in the leading countries, we note that in terms of grain yield the intensification is the most effective in France and Germany; the lowest – in Poland; USA and Britain occupy the middle position. In Poland annual grain yield increased to 1.38 c/ha, in the USA – to 0.94, in France – 0.11, in Germany – at 0.58, while in the UK – decreased by 1.22 c/ha. The yield of sunflower in Germany and France remained at a similar level (about 24 c/ha), and in both countries it declined by 0.42 and 0.41 c/ha per year respectively, while in Poland and in the USA it grew 0.16 and

0.01 c/ha per year on average and reached around 17 c/ha in 2013. By the yield of sugar beet France was the absolute leader (759–969 c/ha in different years), by the rate of growth Poland occupied leading position (an average of 27.7 c/ha per year), although by the absolute value it is still inferior to all surveyed countries. High yields of potatoes is reached by the United States, Germany and France, it remains the lowest in Poland.

In Ukraine, judging by the positive dynamics of the yield parameters of studied crops it was an increase in efficiency of land use intensification. Thus, the yield of grain grew on av-

erage per year to 2.1 c/ha ( $R^2 = 0,590$ ), or for the period 2.1 times and amounted in 2013 to 39.9 c/ha. Sunflower yield for the period increased to 77.9 %, or an average per year of 1.1 c/ha ( $R^2 = 0,808$ ) and was 21.7 c/ha in 2013. The yield of sugar beet in 2013 amounted to 399.0 c/ha, which was 2.3 times more than in 2000, that year it increased by an average of 28.0 c/ha ( $R^2 = 0,733$ ). Over the period the yield of potatoes increased by 31.3 % and in 2013 amounted to 159.7 c/ha, which was provided by the annual growth rate of 6.0 c/ha ( $R^2 = 0,762$ ).

In recent years Ukraine has a significant increase in productivity of major crops, which allowed collecting a record harvest of grain and oil, and actually it allows equating some yields parameters to the leading countries of the world. However, the current trend of growth was characterized for most developed countries 5–10 years ago. For the last five years, the yield of maize in Ukraine increased from 4.5 t/ha to 6.05 t/ha, sunflower – from 1.5 t/ha to 1.92 t/ha, rapeseed – 1.5 t/ha to 2.4 t/ha. These figures were in Europe in 2000–2005. The main reason for this development is the slow rate of use of modern technological approaches and high-performance varieties and hybrid seeds. Therefore, what has long been used in Europe for Ukraine is something completely new.

In terms of meat of all kinds in slaughter weight per 100 hectares of agricultural lands most productive intensification of land use is in Germany, and the growth rate of this index is 17.3 c on average per year, second place is occupied by Poland, where the rate increased by an average of 14.2 c per year, and the least effective it was in USA and France, where the rate in 2013 was about 104.2 c, and if the USA every year increased it by 1.62 c, in France it decreased by 1.72 c. The absolute leader in terms of milk production parameter on 100 hectares of agriculture is Germany where it was 1862.3 c in 2013 that was in 8.3 times more than in the USA, where the figure was the lowest. It should be noted also some factors that may play a role in limiting the growth of livestock production, including milk in the EU. The important ones are environmental restrictions on emissions of greenhouse gases; another factor – the increase in production of biofuels,

which allows more efficient use of land resources than dairy farming (this trend is the most noticeable in Germany and France) [9].

In Ukraine, livestock production per unit of land area had almost opposite trends. For example, in 2013 on 100 hectares of agricultural land it was obtained 57.8 c of meat of all kinds in slaughter weight, which is 41.3 % more than in 2000, ie an average year parameter increased to 2.5 c/ha 100 ( $R^2 = 0,923$ ). However, milk production per 100 hectares of agricultural land for the period decreased by 9.2 %, or an average per year of 6.3 c ( $R^2 = 0,530$ ), and was in the year 277.1 c. According to these figures Ukraine, unfortunately, is significantly inferior to the advanced countries of the world, competing on equal terms with the United States only, which produce milk per 100 hectares of agricultural lands by 19.4 % less than in our country.

The most amounts of eggs per 100 hectares of grain crops are produced in the UK, and the least – in Poland, and in these countries, as in the USA, this parameter is increasing, while in Germany and France it is decreasing. In Ukraine, egg production per 100 hectares of grain crops increased during 2000–2013 to 94.0 % and was 71.4 c, which is close to that of Poland. Thus, the effectiveness (resultant) of the intensification of land use in the studied countries in the production of various types of products was formed in different ways. So the next step in the research was the calculation of certain cost intensification of economic efficiency (Table 2).

Given the limited statistics, the economic efficiency of an intensification of land use in the studied countries was identified on the basis of relative indicator of gross output at current prices. To calculate average prices in related products were used. They formed on the European market in 2012, namely: grain – 300 USD/t, sugar beet – 35, potatoes – 345, meat – 3350, milk – 340, eggs – 5091 USD/t [10–13]. When determining the price of eggs came from the fact that one egg mass roughly equal to 55 g [14, p. 39], and the price is 2.8 USD for ten [15], the price of eggs was 5091 USD/t.

The analysis of the production of conventional gross production in the prices of 2012, including crop production per unit of land area

indicates their positive trend that is the intensification of land use in Ukraine was effective, and cost-effectiveness increased, reaching by these performance levels of France and even slightly ahead of the United States. However, it should be noted that such leadership is somewhat arbitrary because it is based only on the analyzed types of products and does not include

the industrial structure of agricultural production and the quality of products in these countries, as in the case taking into account the structure of commodity production and quality results may be different. At the same time the analyzed indicators of economic efficiency Ukraine is weaker than countries such as Britain, Poland and Germany.

**Table 2. International benchmarking of economic efficiency of land use intensification in some countries, ths. USD**

Indicators	Year								Trend
	2000	2005	2008	2009	2010	2011	2012	2013	
Great Britain									
Obtained on 100 ha of agr. land, conventional gross production in prices of 2012	175.0	163.3	163.3	165.5	160.9	171.4	161.3	167.1	$y = 168.4 - 0.54 t$
including crop production	59.1	51.1	55.4	54.2	51.2	52.5	45.9	48.8	$y = 58.2 - 1.31 t$
Obtained on 100 ha of arable land, conventional gross production in prices of 2012	504.3	487.1	481.8	477.3	461.3	483.3	447.5	463.6	$y = 502.3 - 5.88 t$
including crop production	170.2	152.4	163.4	156.1	146.8	148.1	127.5	135.4	$y = 172.7 - 5.04 t$
Germany									
Obtained on 100 ha of agr. land, conventional gross production in prices of 2012	320.2	324.9	351.8	349.8	352.6	361.0	360.1	366.3	$y = 320.0 + 6.30 t$
including crop production	113.5	109.7	117.3	117.8	106.3	106.4	109.1	111.0	$y = 114.8 - 0.77 t$
Obtained on 100 ha of arable land, conventional gross production in prices of 2012	464.0	464.1	499.6	496.8	499.0	506.6	509.6	518.4	$y = 460.9 + 7.52 t$
including crop production	164.5	156.8	166.6	167.3	150.4	149.3	154.4	157.2	$y = 165.4 - 1.57 t$
Poland									
Obtained on 100 ha of agr. land, conventional gross production in prices of 2012	170.6	188.2	185.1	193.4	209.4	205.4	219.3	215.8	$y = 169.0 + 6.53 t$
including crop production	84.7	76.1	76.1	79.4	79.5	74.8	84.2	77.1	$y = 79.9 - 0.196 t$
Obtained on 100 ha of arable land, conventional gross production in prices of 2012	224.2	247.2	238.0	249.2	280.4	273.9	291.8	287.0	$y = 218.5 + 9.5 t$
including crop production	1113.4	1000.0	978.3	1022.8	1064.8	997.2	1120.2	1026.1	$y = 1036 + 1.05 t$
USA									
Obtained on 100 ha of agr. land, conventional gross production in prices of 2012	69.9	74.0	79.3	80.1	79.6	78.8	77.5	83.6	$y = 71.9 + 1.33 t$
including crop production	27.1	28.6	31.1	32.6	31.3	30.2	28.4	34.1	$y = 28.1 + 0.52 t$
Obtained on 100 ha of arable land, conventional gross production in prices of 2012	165.1	184.6	201.3	205.5	204.7	202.4	204.3	220.4	$y = 172.4 + 5.81 t$
including crop production	64.1	71.3	79.1	83.7	80.4	77.5	74.9	90.0	$y = 67.4 + 2.28 t$
France									
Obtained on 100 ha of agr. land, conventional gross production in prices of 2012	107.9	104.6	102.6	102.5	101.7	101.7	103.9	101.6	$y = 106.1 - 0.608 t$
including crop production	43.1	41.3	45.0	45.6	43.0	43.8	45.4	43.9	$y = 42.8 + 0.237 t$
Obtained on 100 ha of arable land, conventional gross production in prices of 2012	198.1	194.0	192.2	192.1	191.8	191.9	198.1	193.7	$y = 194.6 - 0.137 t$
including crop production	79.1	76.6	84.3	85.5	81.0	82.7	86.5	83.6	$y = 78.6 + 0.854 t$

Ukraine									
Obtained on 100 ha of agr. land, conventional gross production in prices of 2012	65.4	78.8	91.7	86.2	83.3	102.0	94.9	107.4	$y=67.2 + 4.79t$
including crop production	35.2	44.9	55.7	50.4	45.0	62.5	54.3	65.1	$y=37.1 + 3.23t$
Obtained on 100 ha of arable land, conventional gross production in prices of 2012	83.4	100.8	117.4	110.3	106.6	130.5	121.2	137.1	$y=85.9 + 6.11t$
including crop production	44.9	57.4	71.3	64.5	57.6	80.0	69.4	83.1	$y=47.4 + 4.13t$

Source: Author's calculations based on previous table.

The highest economic efficiency of land use intensification was in Germany, where per 100 hectares of agricultural land in 2013 was received 366.3 thousand USD of conventional gross products, that was 4.4 times more than the same parameter of the USA, while in Germany the parameter increased by an average of 6.30 thousand USD per year, and the USA – 1.33 thousand USD. The largest volume of increment in gross production per 100 hectares of agricultural lands was observed in Poland (6.53 thousand USD), and it happened in the first place, due to animal products, as crop production per 100 hectares of agricultural grounds had downward trend.

At the same per 100 hectares of arable land both a production of conventional gross products in general, and in particular crop production, increased quite rapidly (9.5 and 1.1 thousand USD, respectively), indicating a clear trend to increasing economic efficiency of land use intensification. In the UK there is an

adverse trend, in the dynamics of change in gross output as per 100 hectares of agricultural land and per 100 hectares of arable land, and especially of the economic efficiency of intensification of land use was due to plant growing. In France there was a trend to lower gross output as on 100 hectares of agricultural land and arable land (0.61 and 0.14 thousand USD respectively on average per year). But it was by the livestock industry as crop production had a positive trend.

In general, we can note that countries such as Poland and Germany, which are similar to Ukraine climatic conditions, achieved high parameters and cost-effectiveness of intensification of land use and can serve as a strategic guide for our country (Table 3). Thus, the best parameters in Poland can be defined as strategic objectives in the short term (until 2020), and Germany's best parameters – as strategic intensification objectives of land use in Ukraine in the medium term (until 2025).

**Table 3. Strategic targets increasing the effectiveness of intensifying land use in agricultural enterprises of Ukraine are determined based on international benchmarking**

Indicators	Forecasts indicators		In % to indicator in Ukraine in 2013		In % to average indicator to EU in 2013*	
	2020 year	2025 year	2020 year	2025 year	2020 year	2025 year
Productivity, c/ha: grain	60.0	70.0	162.2	189.2	85.7	131.8
sunflower	25.0	30.0	135.9	163.0	83.3	147.8
sugar beets	550.0	650.0	151.4	178.9	84.6	95.1
potatoes	250.0	400.0	148.8	238.1	62.5	134.5
Produced on 100 ha of agr. land, c: meat of all kinds in slaughter weight	100.0	120.0	198.0	237.6	83.3	33.8
milk	400.0	800.0	149.9	299.9	50.0	95.7
Produced eggs on 100 ha of grain crops, c	90.0	125.0	128.4	178.3	72.0	121.8

\* On average in the EU countries in 2013 year productivity grain amounted 53,1 c/ha, sunflower – 20,3 c/ha, sugar beets – 683,4 c/ha, potatoes – 297,4 c/ha, produced on 100 ha of agricultural land meat of all kinds in slaughter weight 355 c and 836 c milk, on 100 ha of grain crops – 56.4 c eggs.

Thus, the general purpose (mission) of management of the soil rational use in Ukraine in the context of European integration can be defined as improving the competitiveness of land resources usage to bring the key parameters of land use efficiency to modern level in advanced EU countries through sustainable intensification of land use on the innovation basis, provided at least, reproduction of potential soil fertility. The main quantitative target indicators of this mission can be considered parameters of intensification of land use and reproduction of organic matter in the soil as the main indicator of its potential fertility [16, p. 27].

Realistic achievement of the strategic goals of intensification of land use is evidenced by the fact that under the «Agri benchmark», a partner from Ukraine for recent years is Association «Ukrainian Agribusiness Club» (UCAB), it was found that our state can increase the yield of most crops only by 50–55 % due to the assumption of weak agricultural enterprises the best practices of successful farms. For example, a substantial increase in production efficiency of grain and oilseeds could be achieved by improving production processes, systems, application of fertilizers, the use of quality seeds, improving quality of execution of manufacturing operations, improving management of the farms [17].

Great potential of grain and oilseeds production intensification shows, for example, that now effective farms receive 60–70 c/ha of wheat, corn – 90–110 c/ha, sunflower – 30–35 c/ha, which is 50 % higher than the average farms. Comparing the average yield of main crops in Ukraine with other developed countries we have much lower rates, but domestic advanced enterprise reached its level not inferior to the leading countries of the world. With livestock production per unit of land area corresponding situation is somewhat more complicated than in the crop production, but taking into consideration the experience of advanced enterprises [13; 14; 18], achievement of strate-

gic objectives can be considered possible, but we need to put much more effort and financial resources. But the result in this case due to synergistic effect can be more significant: in the economic sphere – the production of products with higher added value, in the social sphere – the preservation of existing and creation of new jobs, in the environmental field – the preservation and restoration of fertility, especially organic matter in soil.

In general it can be noted that in the average Ukrainian agricultural enterprises on productivity of land use are close to the least efficient companies that currently operate in Europe and other developed countries but in micro level the situation is formed differently. Given the identified macroeconomic trends, it is reasonable to expect in the future growth of productivity rates and economic efficiency of land use intensification in agricultural enterprises. The approach to modern business leaders through sustainable intensification of land use on the innovation basis in Ukraine will significantly improve the competitiveness of enterprises of the agricultural sector.

**Conclusions.** In terms of global competition one economic instrument for management of rational soil use is benchmarking, which allows by application-based permanent comparison subject with the standards identifying what others are doing better than us, and, borrowing the best practices, outline areas of bridging the gap between what we have, and competitors' achieved level. As a result of the benchmarking study it was defined mission of management of rational soil use in Ukraine in the context of European integration and strategic goals of increasing the effectiveness of intensification of land use in agricultural enterprises of Ukraine in the short (2020) and medium-term (2025) perspective. The use of research results can improve management efficiency of the rational use of soil and competitiveness of the agricultural sector.

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## Новини АПК

### 11 областей завершили сівбу ранніх ярих зернових культур

На даний час 11 регіонів завершили сівбу ранніх ярих зернових: це Одеська, Вінницька, Тернопільська, Хмельницька, Чернівецька, Волинська, Житомирська, Закарпатська, Івано-Франківська, Рівненська та Чернігівська області. Про це повідомив Міністр аграрної політики та продовольства України Тарас Кутовий.

За його словами, зернових культур висіяно на площі 2,3 млн га, або 94% до прогнозу, в т. ч.: пшениці – 159 тис. га, або 92%, ячменю – 1,8 млн га, або 92%, вівса – 208 тис. га, або 95% та гороху – 223 тис. га, або 116.

«Цукрові буряки посіяно на 269 тис. га, або 100% до прогнозу, соняшнику – 2,0 млн га, або 40%. Сівбу кукурудзи на зерно проведено на площі 1,3 млн га, або 30% до прогнозу. Також розпочато висів сої, який проведено на площі 222 тис. га, або 11% до прогнозу», – наголосив Міністр

*Довідково:*

*За узагальненими даними регіонів уся посівна площа сільськогосподарських культур у всіх категоріях господарств під урожай 2016 року очікується в межах 26,5 млн га, або на рівні 2015 року.*

*Зернові культури в усіх категоріях господарств прогнозується висіяти на площі 14,4 млн га, або 54% у структурі посівних площ, що відповідає нормативам оптимального співвідношення культур у сівозмінах.*

*Посів ярих зернових культур прогнозується на площі 7,5 млн га. При цьому структура зернового клину під урожай 2016 року може децю зрости за рахунок оптимізації площ кукурудзи на зерно та пізніх круп'яних культур.*

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