

STATUS OF NUTRIENT BOOKKEEPING IN LITHUANIA

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Workshop in Oldenburg, 2015

Content



- ❑ **Population:** 2.979.000 (0,6% EU)
- ❑ **Geographical size:** 65 300 km²
- ❑ **Border to *neighbour states*:**
Latvia (588 km), Belarus (678 km), Poland (104 km) and Russia (273 km)
- ❑ **Seaboard:** 90 km.
- ❑ **22 000 rivers and streams**
- ❑ **2830 lakes.**
- ❑ **The country is flat**, with a few low hills in the western uplands and eastern highlands.

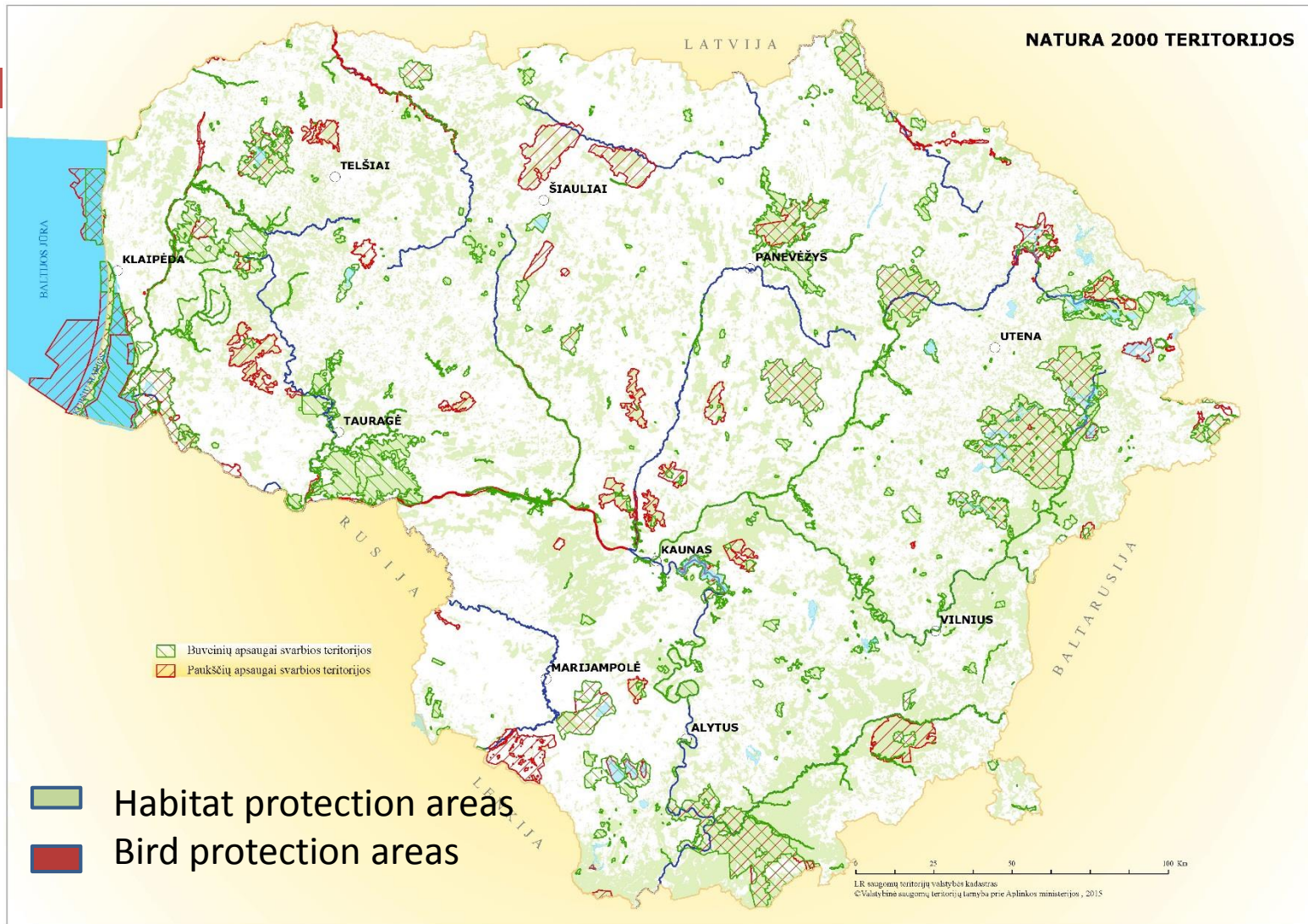


LAND-USE CATEGORIES	Area, thou. ha	Percent
Agricultural land	3465,3	53,1
Forest land	2123	32,5
Other wooded land (bushes)	79,3	1,2
Roads	132,1	2
Urban territory	180,1	2,8
Water	262,5	4
Swamps (bogs)	117,2	1,8
Other land	170,5	2,6
Total	6530	100

100



NATURA 2000



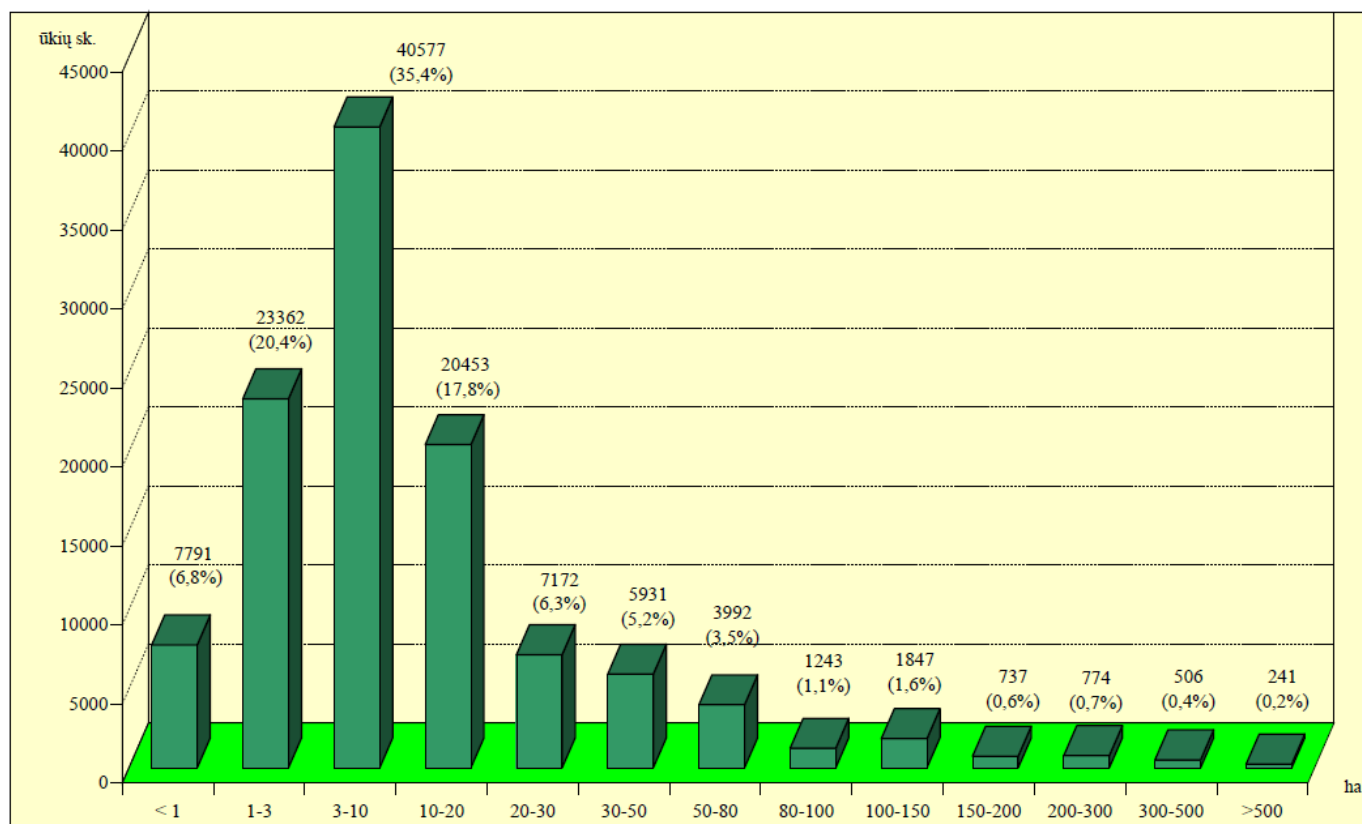
View of Lithuania's farm situation



No. of registered farmers in farm registre	~ 119 202
No. of associated agricultural enterprises	~ 600
No. of applications for Direct payment	~ 142 581
Average agr. holding size	~ 15,1ha

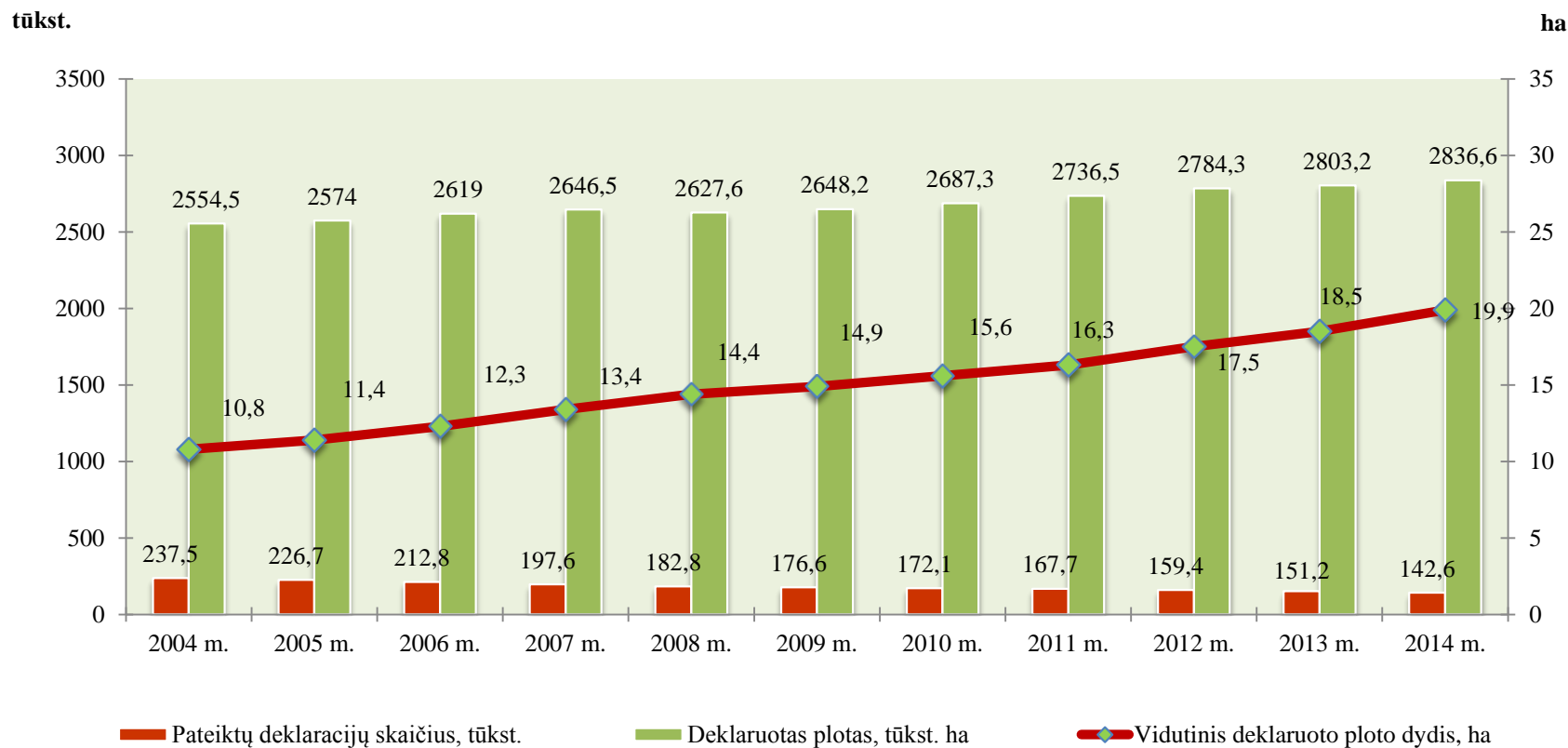
Registered holdings manage land area...

ŪKININKŲ ŪKIŲ REGISTRE ĮREGISTRUOTŲ ŪKININKŲ ŪKIŲ ŽEMĖNAUDŲ PASISKIRSTYMAS PAGAL SUGRUPUOTĄ NAUDOJAMŲ (DEKLARUOTŲ) ŽEMĖS ŪKIO NAUDMENŲ PLOTĄ



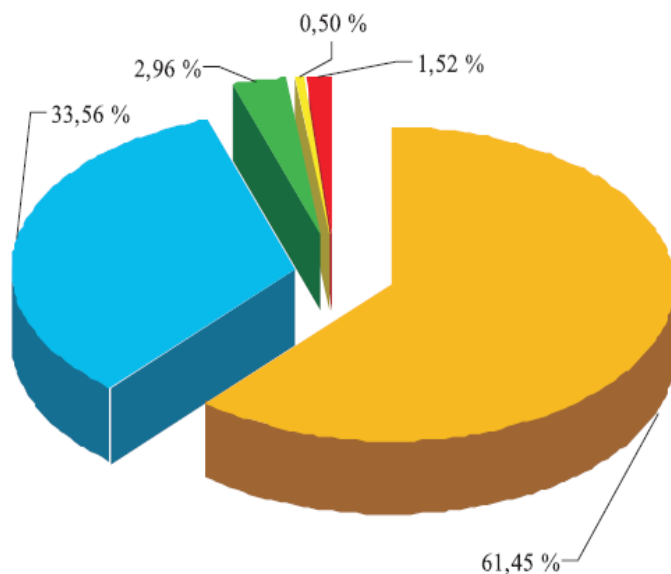
Applications for the direct payment

15 pav. Pateiktų deklaracijų skaičius, bendras deklaruotas plotas, vidutinis deklaruoto ploto dydis 2004-2014 m.



**Deklaruotų žemės ūkio naudmenų plotų pasiskirstymas
2014 m.**

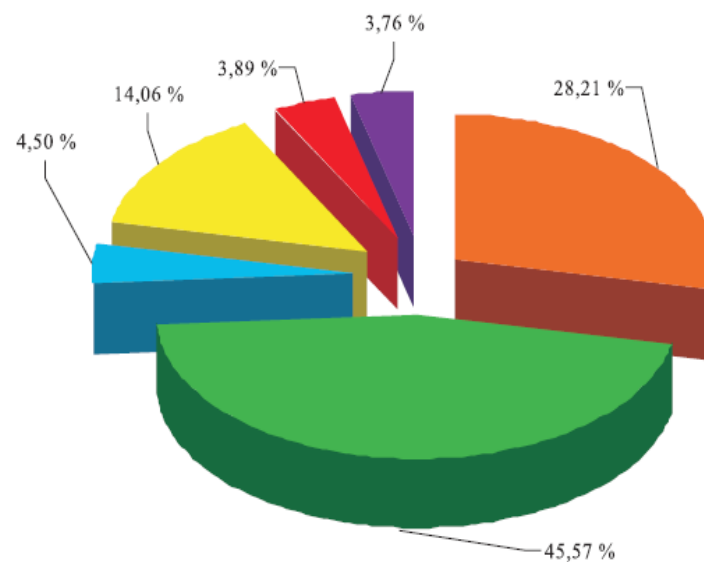
Distribution of declared agricultural land in 2014



- Ariama žemė / Arable land
- Pievos ir ganyklos / Grasslands and pastures
- Pūdymai / Fallows
- Sodai ir uogynai / Orchards and berry plantations
- Kiti deklaruoti plotai / Other declared areas

**Deklaruotų pasėlių pasiskirstymas pagal grupes
2014 m.**

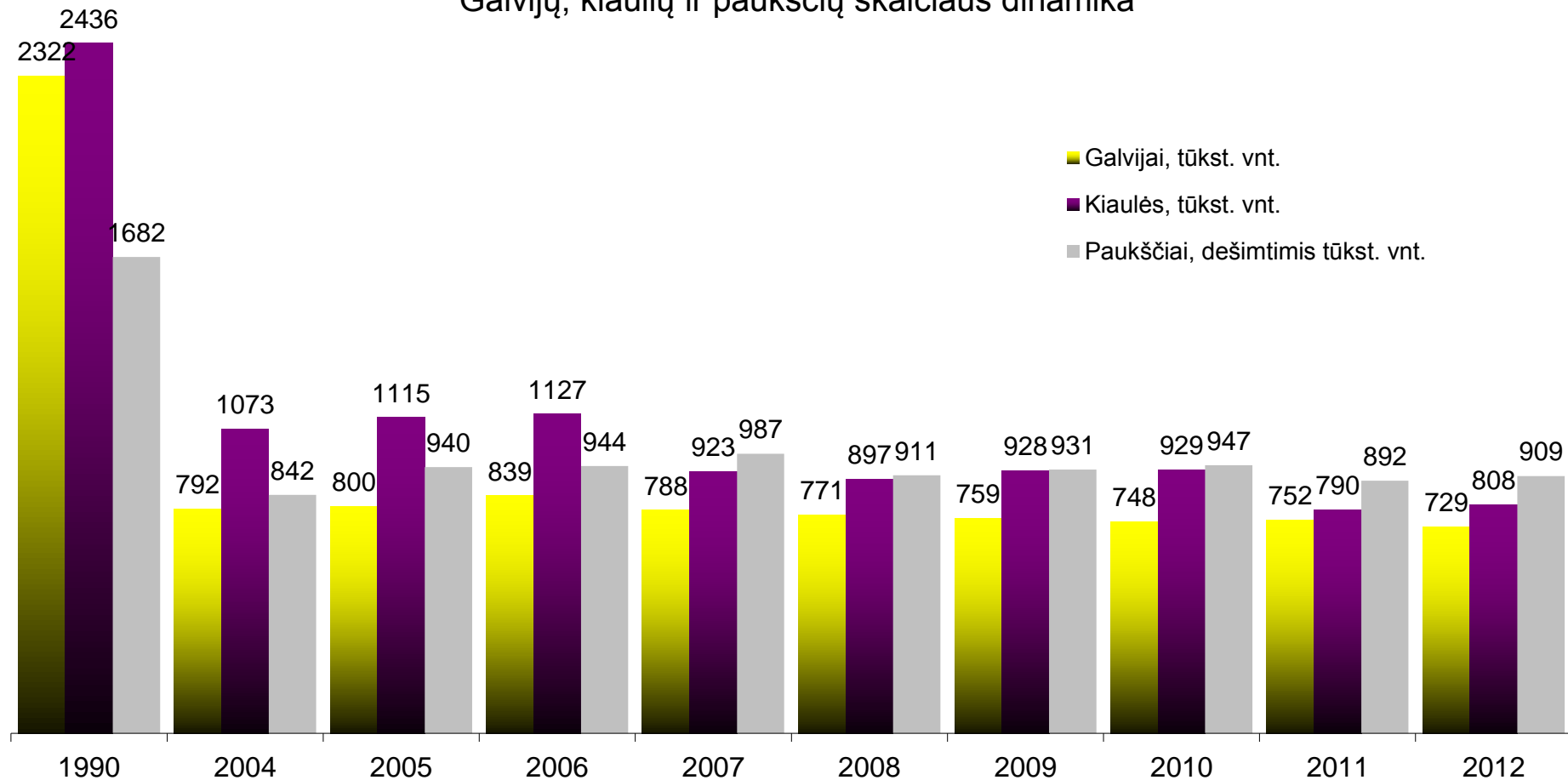
Distribution of the declared crops by groups in 2014



- Žieminiai javai / Winter cereal
- Vasariniai javai / Summer cereal
- Ankštiniai augalai / Leguminous crops
- Techniniai augalai / Industrial crops
- Pašariniai augalai (išskyrus ganyklas ir pievas) / Forage crops (excluding grasslands and pastures)
- Kiti deklaruoti pasėliai / Other declared crops

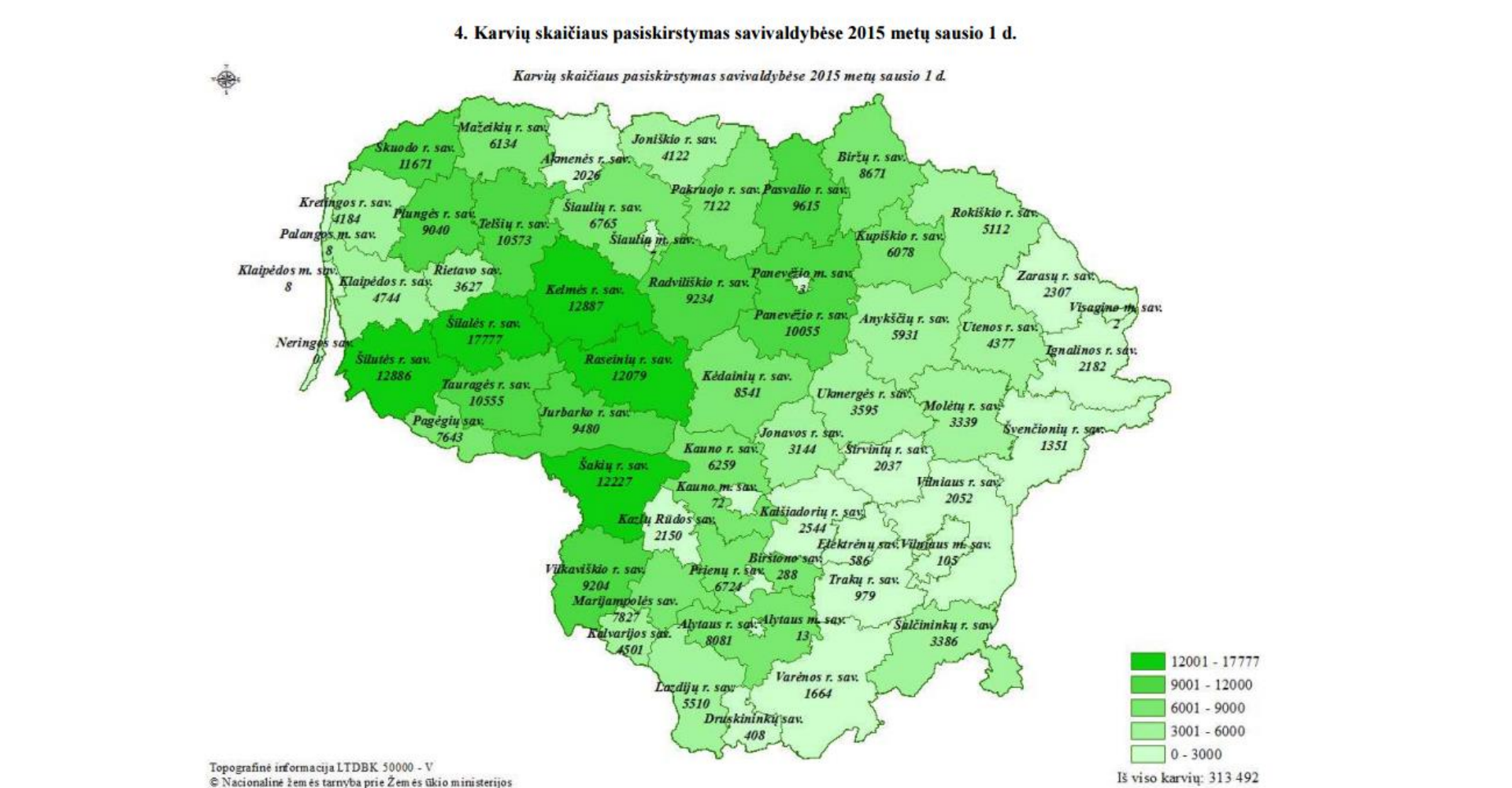
Dynamic of the number of animals

Galvijų, kiaulių ir paukščių skaičiaus dinamika



Šaltinis: Lietuvos statistikos departamentas

Response	Percentage
Yes	75%
No	25%



Legal Background

- On base of ND, WFD – nacional regulations
- All environmental regulations obligate farmers to make changes.
- The tools necessary to encourage and facilitate this process of adjustment are **knowledge, information and advice**



Compulsory requirements for farmers

Periods of application of fertilizers

- ❑ Organic fertilizers might be spread during warm season - from 1 April to 15 November
- ❑ Forbidden to spread organic fertilizers from 15 June to 1 August (except fertilization of fallow, meadows, pastures and areas for winter crop cultivation)
- ❑ Forbidden to fertilize if land is frozen, under snow or waterlogged

Compulsory requirements for farmers

Requirements for the capacity of storages manure

- ❑ Manure and (or) slurry must be stored in a way to prevent surface and groundwater pollution.
- ❑ Manure or slurry may be stored in barns, manure storages, slurry storage or especially equipped solid manure pile near the barn or in the fields;
- ❑ with capacity to accommodate not less than 6 months of manure (except for manure processing)

Compulsory requirements for farmers

Establishment of fertilization plans

Fertilization plans should be established in farms:

- ❑ fertilizing organic fertilizers more than 50 ha of agricultural land
- ❑ Fertilization plan should take into account: soil type, soil conditions, slope, climate, crop rotation, desirable yield, nutrient storage in soil, soil pH, requirements of special land use conditions
- ❑ Records on fertiliser use should be kept in farm record book

Compulsory requirements for farmers

Limitation of the amount of manure applied to the land

- The amount of livestock manure applied each year, including manure left on fields after grazing, should not exceed the equivalent of 170 kg of nitrogen per hectare
- Animal density should not exceed 1.7 animal units per hectare of agricultural land
- When animal density is higher, farmer should procure additional land or to transferee excess of manure to other farm, where animal density is less than the norm established.

Compulsory requirements for farmers

Preventive measures in hilly areas:

- ❑ On slopes $> 5^\circ$ perennial grass have to cover $>35-40\%$ of the total crop rotation area
- ❑ On slopes $5-7^\circ$ - perennial grasses have to cover at least 50% of the total crop rotation area
- ❑ On slopes $7-10^\circ$ - the area of perennial grasses has to cover at least $65-80\%$
- ❑ When slope is $10-15^\circ$ only perennial grasses have to be planted

Compulsory requirements for farmers

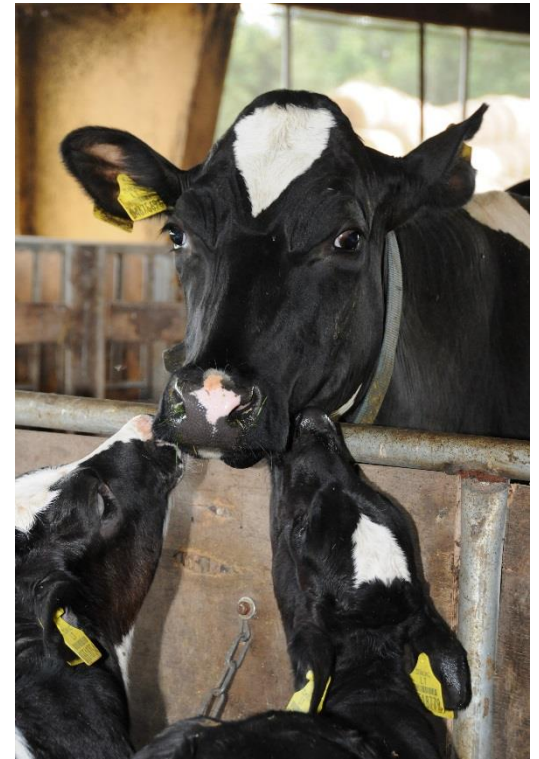
Water protective strip belt



- Near rivers longer 10 km or water accumulations bigger than 0,5 ha:
 - 5 m – if stream side slope is $> 5^\circ$
 - 10 m – if stream side slope $5-10^\circ$
 - 25 m - if stream side slope $< 10^\circ$

Compulsory requirements for farmers

Time for manure incorporation –
during 24 hour after spreading



Compulsory requirements for farmers

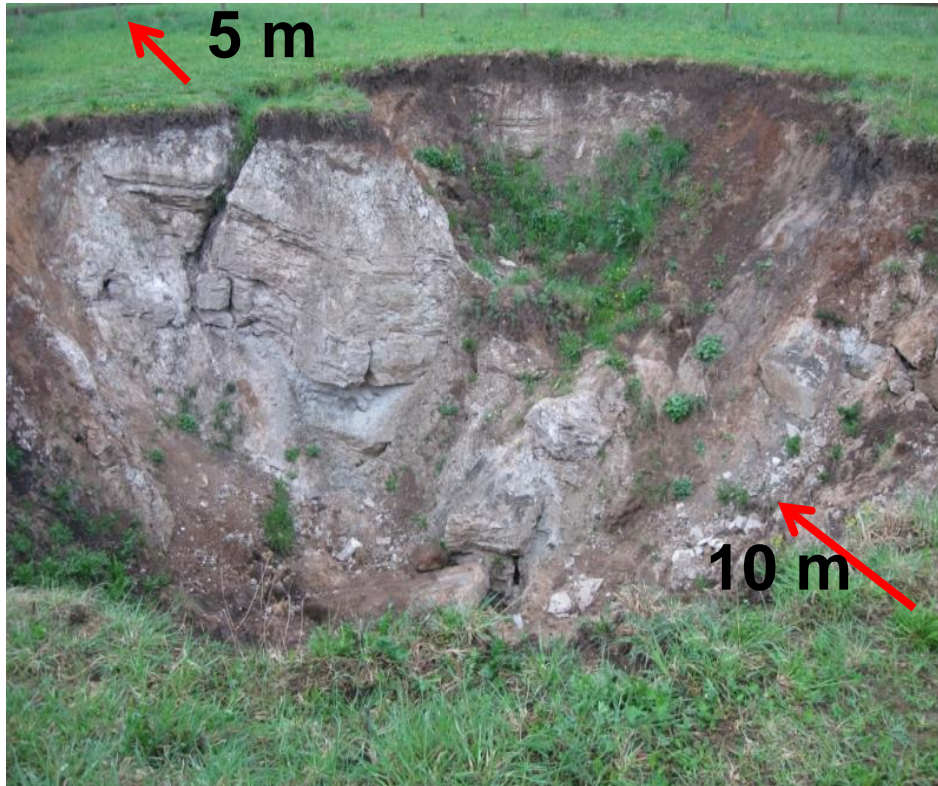


Natural (flooded and dry) meadow and pastures

It is forbidden to drain and plough natural meadows and pastures (except polder types) or change their condition and grassland composition in other ways.

Compulsory requirements for farmers

- Protection zone has to be established around a karst sinkhole- depending on sinkhole type: from 5 to 10 m from its edge.

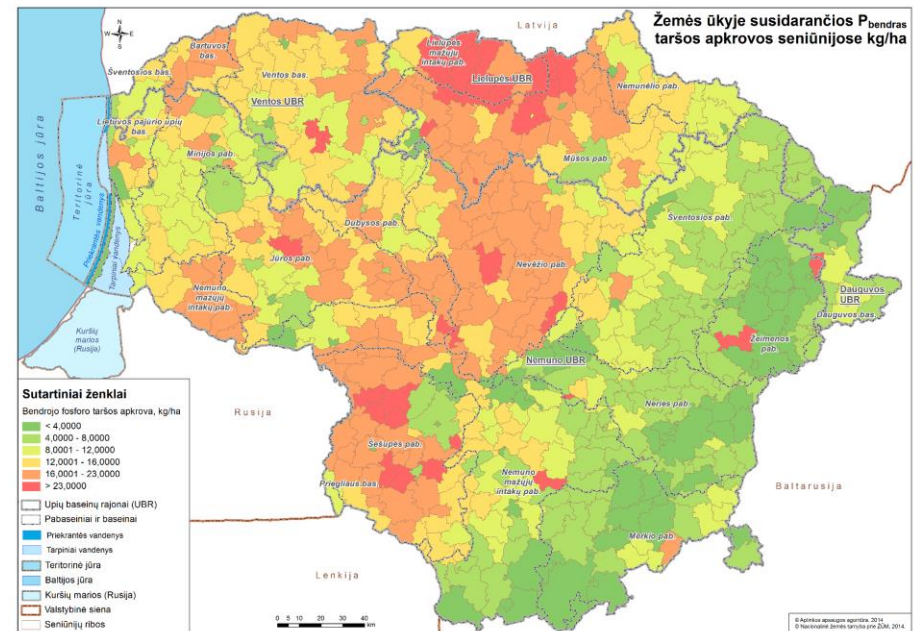
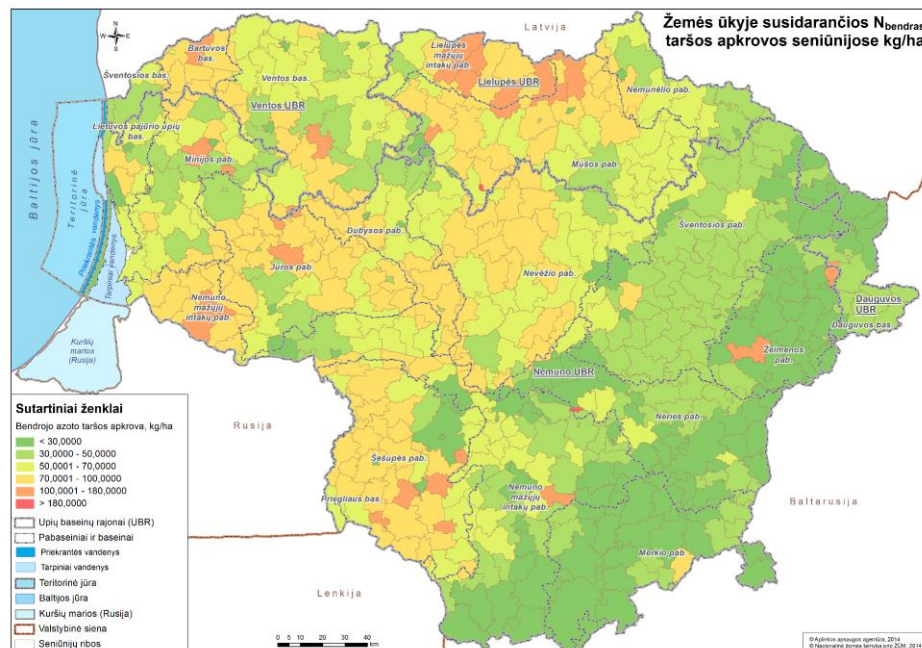


Parties involved

- Policy makers – The Ministry of Agriculture; The Ministry of Environment;
- Controlling institutions - Regional Department of Environmental Protection (RAAD), National Paying Agency (NMA), State Plant Production Service (VAT);
- Data processing - Agricultural Information and Rural Business Centre (ŽŪIKVC); Environmental Agency (AAA); Lithuanian Department of Statistic (LSD);
- Research institutions - Lithuanian Agriculture and Forestry Sciences Center (LAMMC);
- Advisory and other institutions - Lithuanian Agricultural Advisory Service, Centre for Environmental Policy (AAPC), etc.
- FARMERS

Methods

- The nutrient balances and agricultural pollution on water bodies have been calculate within the River Basin District management plans



Calculated anthropogenic influence of the Nemunas basin and sub-basins in 2010

Basin/sub-basin	Concentraited pollution into water bodies		Agricultural pollution falling into the soil			
			Organic fertilizers	Mineral fertilizers	Organic fertilizers	Mineral fertilizers
	N, t	P, t	N, t	N, t	P, t	P, t
Žeimenos	32.42	6.00	1580	2021	269	330
Šventosios	88.43	12.48	6643	11371	1129	1952
Neries mažųjų intakų	738.83	56.12	3284	3439	558	608
Nevėžio	229.45	19.64	9163	19411	1558	4166
Merkio	64.30	10.41	2472	3442	420	637
Nemuno mažųjų intakų	627.55	72.90	11576	14378	1968	2623
Dubysos	10.44	1.79	2911	4782	495	923
Šešupės	105.11	12.25	9025	13474	1534	2832
Jūros	60.20	12.79	7076	8826	1203	1583
Minijos	50.78	6.39	4549	5168	773	863
Lietuvos pajūrio upių	167.07	20.77	1040	1732	177	337
Priegliaus	0	0	103	157	17	25
TOTAL	2 175	231.5	59 422	88 201	10 101	16 879

Source: Nemunas River basin district plan,
By Centre for Environmental Policy

Methods

- ❑ **Fertilisation plans and soil tests**
- ❑ If a farmer fertilize organic fertilizers and manure (or) slurry over 50ha of agricultural land during the calendar year, he must have requirement compliant fertilization plan;
- ❑ Fertilization plan must be drawn up each year before the start of the crop fertilization with manure and (or) the slurry and must be showed on request of controlling authority.

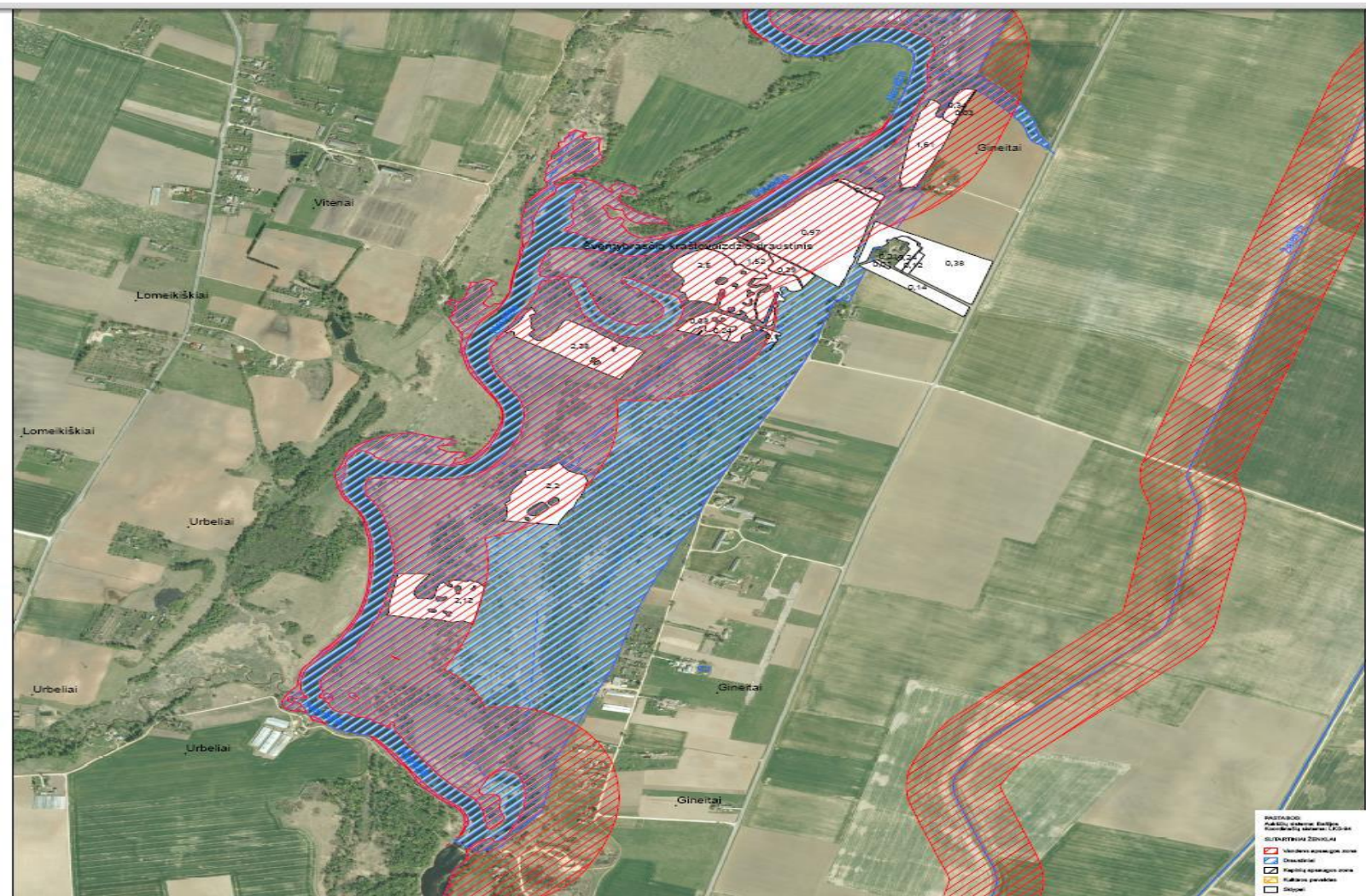
Praktinis tręšų poreikio skaičiavimas					
		N	P ₂ O ₅	K ₂ O	
Augalas, paskirtis		Kvėtinai šienams, Grėdai			
Planuojamas derlius		5.2			
Derlius (t/ha) duomenys(2011.03.23)		N 9.9 t/ha/kg	50.7	182	164
Agriklės azoto kiekis kg/ha			51.09	105.48	2.62
Žaliųjų tręšų		nenulcia			
Korekciija pagal žaliuosius tręšus tręšiamąjį vertę, kg/ha		0	0	0	0
Organiniai tręšai - OT		nenulcia			
Puikščiavimas		nenulcia			
Korekciija pagal organinių tręšų tręšiamąjį vertę, kg/ha	0	Pasaulinis organinių tręšų t/ha			
Organiniai tręšai - OT		0	0	0	0
Puikščiavimas		nenulcia			
Korekciija pagal organinių tręšų tręšiamąjį vertę, kg/ha	0	Pasaulinis organinių tręšų t/ha			
Tręšų poreikio skaičiavimas		Vienas ha	875.2	151.08	465.6
Tręšų poreikio kiekį kg pagal parametrus					
1. 10% 16.6-19.0-10.0-10.0-10.0-10.0	0.96	120	21.6	9.6	19.2
2. 10% 17.1-21	1.26	170	11.9	28.9	52.7
3. Kvėtinami (0-40)	0.96	120	25.2	0	0
4.	0	0	—	—	—
5.	0	0	—	—	—
6.	0	0	—	—	—
7.	0	0	—	—	—
Tręšų poreikio ir atlikimo kiekio skaičiavimas			20.7	5.46	11.3
			100%	100%	100%

Methods

Fertilization plan:

- ❑ Soil tests not older than 3 years of data on nitrogen and phosphorus in the field;
- ❑ The planned use of manure and slurry amount;
- ❑ Estimated nutrients needed for the planned crop yield (annual rate of fertilization, a single rate of fertilization);
- ❑ Fertilizing timetable (in months);
- ❑ Map of fertilize fields

Methods



Implementation

- ❑ Advisory services:
 - ▣ trainings;
 - ▣ soil sampling and fertilization planning;
 - ▣ internet based computer program e-GEBA;
- ❑ Lithuanian Ministry of Agriculture signed up new regulation since 2016 for farmers who participate in Rural Development Program for Ecological farming to calculate nutrient balance on farm level. New methodology is under preparation now.
- ❑ Implementation on farms
- ❑ Controlling

Summary

- ❑ involve farmers in training, to educate them in usefulness of Nutrient balance recording;
- ❑ improve the collection of actual data by combining the knowledge and resources of various organizations;
- ❑ based on the experience of other countries to develop / improve the calculation of Nutrient Balance in Lithuania.



THANK YOU FOR ATTENTION