Grain Legumes in Lithuania

LITHUANIAN RESEARCH CENTRE FOR AGRICULTURE AND FORESTRY

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LEGUMES

The legumes could be using as the **main crop** (Šarūnaitė et al., 2013; Povilaitis et al., 2016), **pre-crop** (Šarūnaitė et al., 2013; Preissel et al., 2015), **intercrop** (Amossé et al., 2013; Arlauskienė et al., 2014), **cover crop or green manure** (Tripolskaja, Šidlauskas, 2010; Thorup-Kristensen et al., 2012; Brozyna et al., 2013; Li et al., 2015; Benke et al., 2017).

ECOLOGICAL SERVICES OF LEGUMES

The legume-based ecological service is a very important.

Production of legume crops

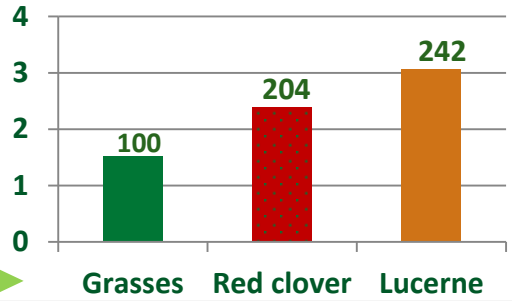
Higher biodiversity in crop rotation

Maintenance of soil fertility

Reduction of N fertilizers in crop rotation

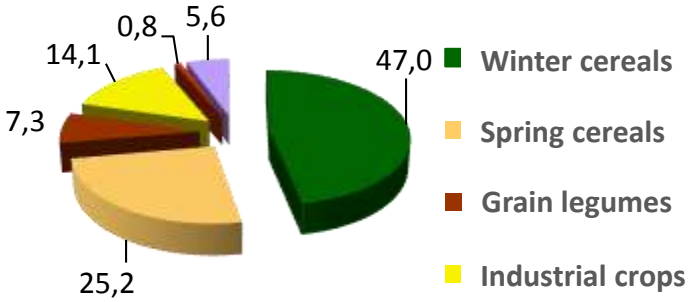
Yield increase of sequences crops

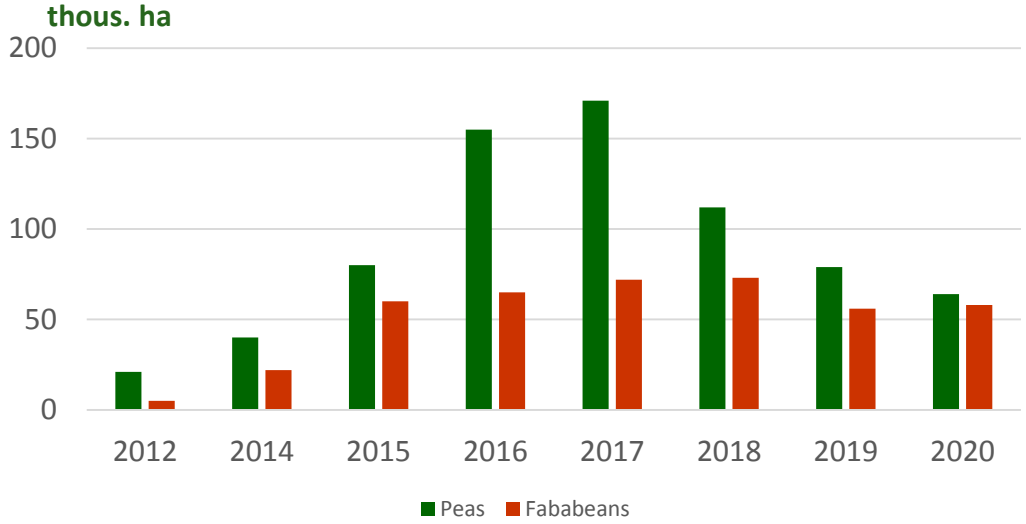
N input in soil after legume pre-crop, kg ha



Winter wheat yield after legume pre-crop , t ha^{-1}

Distribution of declared crops by groups, proc.





Area of main grain legumes in Lithuania

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PLANT BREEDING

- ✓ The winter wheat ‘NEMUNAS’ and ‘KALLAS’ **developed with Estonian Jogeva Plant Breeding Institute**;
- ✓ Perennial ryegrass ‘ELENA DS’ and meadow fescue ‘RASKILA’ are **multiplied/distributed by Hood River Seed in USA**;
- ✓ *Trifolium hybridum* ‘LOMIAI’ and *Medicago lupulina* ‘ARKA DS’ **multiplied/distributed by Feldsaaten Freudenberger GmbH & Co. KG (DE)**

*** Pea varieties:**

‘**Simona**’, 2008
Ieva DS, 2015
Jūra DS, 2017

20 CEREALS AND 5 PULSES VARIETIES*

40 GRASSES*

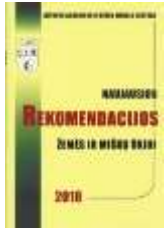
14 LEGUMES*

*Crop varieties included in the national Variety list and EU Common Catalogue

DISSEMINATION OF RESULTS

In the Institute formulated cultivation techologies of main crops

Seminars, field days for farmers and agricultural specialists from state and private enterprises annualy.



Each year, publish popular publications, special publications, as recommendations for agriculture, on cultivation technologies etc.

Fostering sustainable legume-based farming systems and agri-feed and food chains in the EU

Legumes in cropping systems

Farmers need better and more stable yields and for this need better control weeds and other best practice in legume cultivation.

Farmers interested about crop rotations. Some farmers grow grain legumes more for soil improvement than for the economy. There is a small selection of plant protection products when growing rare legume species (e.g., vetch, soybean) and for peas and fababeans too.

The locally grown legumes grain is used for processing into feed or food products, but its incorporation into these products is rather small. The export of grains does not generate maximal value. The farmers gross margin in the domestic market is too low.

Smart-Legume

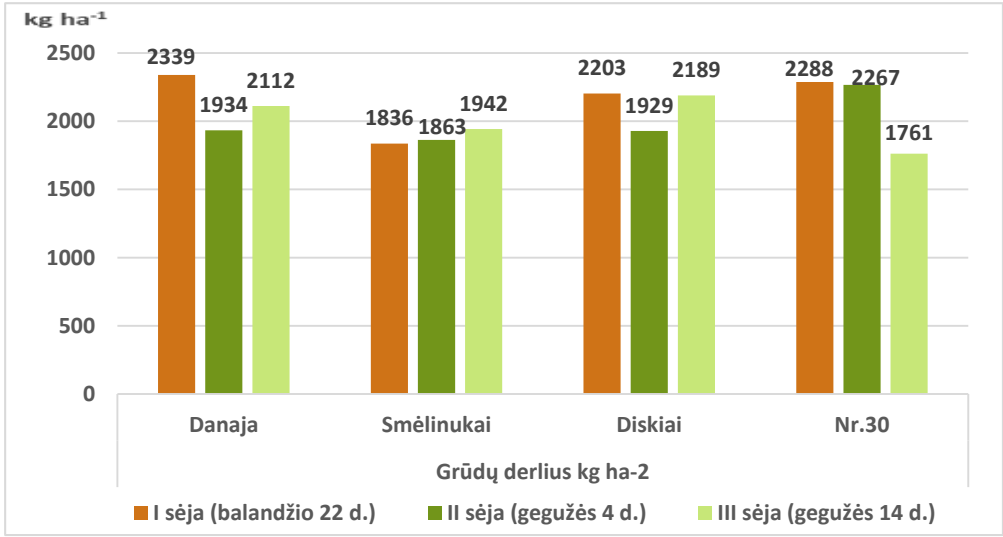
Enhancement of the multifunctional properties of legumes in feed and food value chains

Focus on:

new varieties and selection numbers of peas,
agronomic, technological properties of lentils and chickpeas and
their usefulness in crop systems in the interaction of biotic and abiotic factors

Grain yield in 2020, kg ha^{-1}

Pea varieties	Conventional	Organic farming	
		experiments	On farm
Jūra DS	4388	4169	1938
Egle DS	6348	4863	2892
Lina DS	5925	4037	2002



Lentils in organic farming crop rotation, 2020

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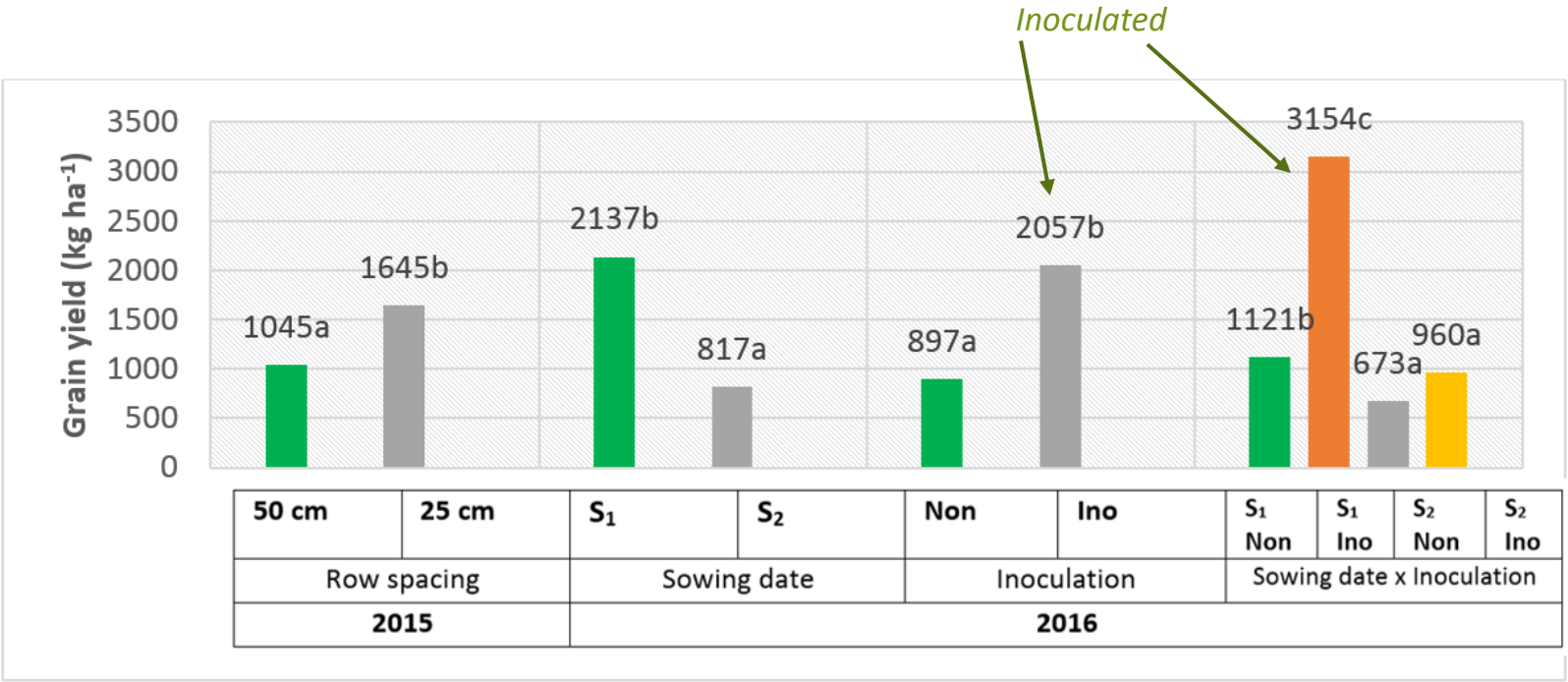
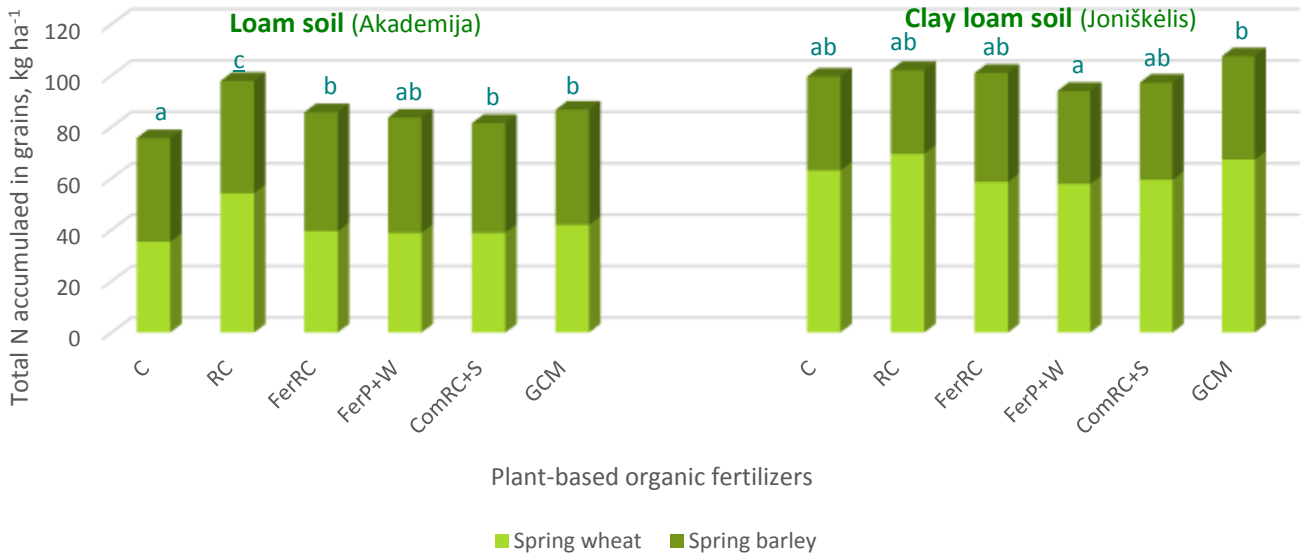


Probability level, ($p \leq 0.05$), **S_1-earlier sowing time, S_2-2 weeks later sowing time, Non - not inoculated, Ino – inoculated**

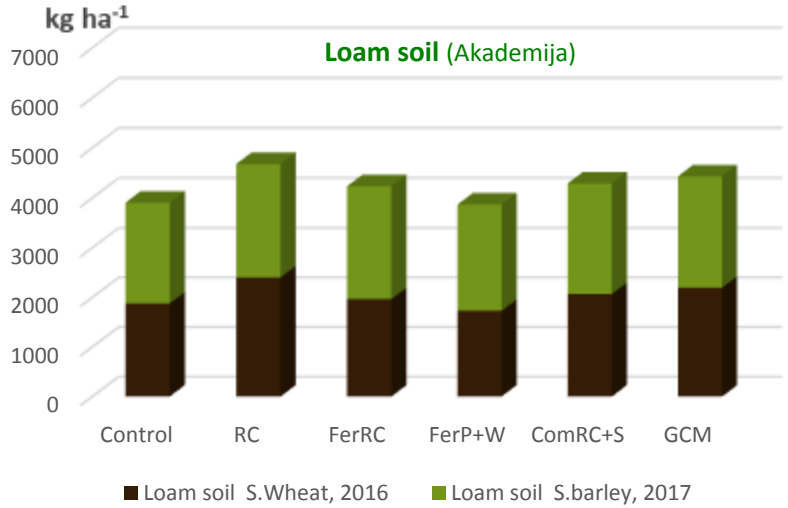
Grain yield of soybean as influenced by management factors

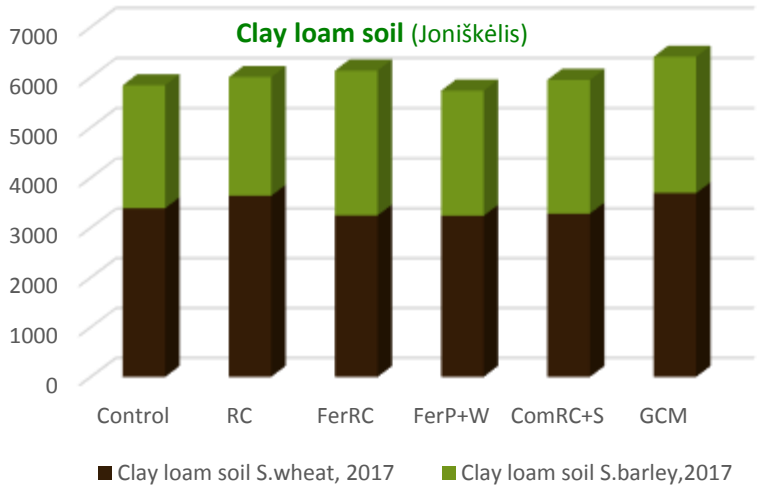
Toleikienė M., Šlepetys J., Šarūnaitė L., Lazauskas S., Deveikytė I., Kadžiulienė Ž. 2021. Soybean development and productivity in response to organic management above northen boundary of soybean distribution.



Influence of plant-based organic fertilizers on the total N accumulation in cereals grains and straw yield

Note. C – control with no fertilizers; RC – fresh red clover mass; FerRC – fermented red clover mass; FerP+W – fermented pea and spring wheat mass; ComRC+S – composted red clover and straw manure; GCM – granulated cattle manure; Different letters indicate statistically significant between the treatments ($p < 0.05$).





RC – fresh red clover mass, FerRC – fermented red clover mass, FerP+W – fermented pea and spring wheat mass, ComRC+S – composted red clover and straw mass, GCM – granulated cattle manure; DM – dry matter

The influence of various organic manures on cereal yield

Toleikienė M., Arlauskienė A., Šarūnaitė L., Šidlauskaitė G., Kadžiulienė Ž. 2020. The effect of plant-based organic fertilisers on the yield and nitrogen G. utilization of spring cereals in the organic cropping system. Zemdirbyste-Agriculture, 107 (1): 17–24.

Thanks for your attention !