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Results of the researches regarding foliar fertilizers at spelta wheat crop (*Triticum aestivum ssp. spelta*) in ecological system

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Abstract: *Triticum aestivum ssp. spelta* (spelta wheat) is a cultivated specie to obtain alimentary products and ecological meadows. Its physiological characteristics, rudimentary and resistance to bad conditions of vegetation determined its enlargement on greater and greater surfaces. There were tested six foliar fertilizers specific for ecological agriculture in order to stimulate production and several quality features. In the presebnt paper there is presented the effect of several foliar fertilizers upon seeds production.

INTRODUCTION

Ecological agriculture wants to harmonize the dynamic interactions between soil, plants, animals and human, or in onother words, among ecological, economical and social offert of agro ecosystems and human need to feed, dress and live.

In Europe, ecological agriculture is more developed practically and scientifically especially in economical developed countries from the west of the continent.

In Romania, ecological agriculture is at the begining in many aspects. Because ecological agriculture can offer solutions to the people`s problems (field distruction, the decrease of the agricol producers number and their power, rudimentary technologies, decreased production etc.) and that agro ecological potential of Romania is over 25 % from the agricol surface, agricol production and agro alimentary products nedd to become state policy (TONCEA, 2000).

Among the spelta wheat qualities there are noticed: glassy bean is well covered and gives a flour which is cery rich in gluten. It is resistent to cold and diseases. It is apropiate for pig poultries fodder,and in general for reproducers. It can offer flour with a very good quality for baking, and doesn`t need top add ameliorant substance. Spelta remarks by the fact that, in case of less vaforable clime and soil conditions, it has higher productions and safer compared to common wheat (*Triticum aestivum ssp. vulgare*). It is apreciated that this form of wheat may be also of interest for several agricultural areas in Romania, with colder, wet climate, wher it could behave better than other cereals (Gh. V. Roman, 2003). This fact is also confirmed by recent findings and contributes to the rentability of production (Bioterra, 2002); the fact that in the west of Europe there is a constant request growing for spelta wheat is also an advantage, beyond the quantities produced there, which contributes to the posibilty of its valorification at a higher price that the price for common wheat.

MATERIAL AND METHOD

Research took place during 2006-2007, in an experimental field organized within Agricol Research Station Jucu on a typical clay soil with clay texture, low acid, rich in humus and fertilizers content, excepting phosphorus. Soil chemical features, those regarding to organic elements content, pH and a low content in Ca , at saturation level in alkali are favorable for ecological wheat crop based on soil natural resources, on their regeneration and complex organic material supply. There were sowed two types of common wheat: Apullum and Kappo adaptable to ecological agriculture together with Spelta wheat, specific for this type of agriculture, in the first decade of October. There weren't applied any chemical fertilizers nor treatments against weeds, pests and diseases.

There were tested six foliar ecological fertilizers in the doses presented in table 1.

Table 1

Tested foliar fertilizers

Nr.crt.	Name of the foliar fertilizer	Doze / ha	Appliance period
1.	Biomit	2 l	Growing, earing phase and after earing phase
2.	Biostar	3 l	Growing, earing phase and after earing phase
3.	Biofert	6 l	Growing, earing phase and after earing phase
4.	Maxiroot	3 l	Growing, earing phase and after earing phase
5.	Terra Sorb	3 l	Growing, earing phase and after earing phase
6.	Glutaxin	3 l	Growing, earing phase and after earing phase

The method applied was in randomised blocks with four repetiotions and plot size of 4,5 m^2 (1,5 x 3). Fertilizers appliance was made in three vegetation phases: growing phase, earing phase and after flowering phase. The quantity of solution used at ha was of 600 l.

RESULTS AND DISCUTIONS

Spelta wheat has a production potential of 3.000 şi 4.000 kg/ha, as some valuable cultivars cultivated in our country. The qualities of rusticity were stimulated more by foliar fertilizers appliance compared to improved cultivars. If in the case of Apullum and Kappo there are obtained significant increases, distict significant by applying Biofert or Maxiroot, at spelta wheat more fertilizers stimulate the production assuring significant differences and distinct significance difference (table 2).

Table 2

The influence of several foliar fertilizers upon spelta wheat production compared with two improved cultivars

Cultivar	Foliar fertilizer	Production Kg/ha	Production %	Difference	Significance
Apullum	Martor	4376,29	100,0	0,00	Mt.
	Biomit	4488,32	102,6	112,03	-
	Biostar	4258,15	97,3	- 118,14	-
	Biofert	4980,81	113,8	604,52	*
	Maxiroot	4306,74	98,4	- 69,54	-
	Terra Sorb	4411,33	100,8	35,04	-
	Glutaxin	4187,01	95,7	- 189,27	-
Kappo	Martor	4735,80	100,0	0,00	Mt.
	Biomit	4657,26	98,3	- 78,54	-
	Biostar	4154,82	87,7	- 580,98	0
	Biofert	4429,58	93,5	- 306,23	-
	Maxiroot	5644,96	119,2	909,16	**
	Terra Sorb	4502,84	95,1	- 232,97	-
	Glutaxin	4461,19	94,2	- 274,61	-
Spelta	Martor	3377,11	100,0	0,00	Mt.
	Biomit	3383,23	100,2	6,12	-
	Biostar	4023,11	119,1	646,00	*
	Biofert	3937,20	116,6	560,09	*
	Maxiroot	3362,83	99,6	- 14,28	-
	Terra Sorb	4171,57	123,5	794,47	**
	Glutaxin	4292,61	127,1	915,51	**

DL 5% = 547,72
DL 1% = 733,53
DL 0,1% = 967,42

Among the foliar fertilizers tested, Biofert and Biostar assure significant increases of production, the values being between 500-600 kg/ha, and with distinct significant difference of production is Terra Sorb and Glutaxin foliar fertilizers, the values being of 790-915 kg/ha.

CONCLUSIONS

1. Spelta what finds favorable cultivation conditions in Cluj area achieving productions between 3.000- 4.000 kg/ha.
2. Spelta weat answers favorable to the treatment with foliar fertilizers with significant and distict significance of production.

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