CURRENT SITUATIONS IN ORGANIC CEREAL SEED OFFER IN THE CZECH REPUBLIC

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Abstract

Organic farmers are obliged, in compliance with the valid legislation, to use seed originating from the organic production when establishing the crop stands. In a survey we found certified organic cereal seed is used on 6 %, conventional untreated seed on 37 %, and farm seed on 57 % (of the organically farmed area in the Czech Republic). The main reasons for that are as follows: the insufficient surface of land intended for the reproduction of organic seed, the low proportion of accepted seed coming from the accepted reproduction surface. Therefore, low-quality farm seed is used on a large proportion of organically farmed land, which has a negative effect on the yield level of the cereals. These observations were also confirmed by results obtained in a farmer survey. Farmers indicated that they are interested in certified organic seed if it is available. However, the sufficient supply and favourable prices are important for them.

Introduction

The surface of arable land represented 12.26 % (54,937 ha) in the organic farming system (OF) in the Czech Republic (CZ) by 31 December 2010. The cereals are the most important market crops grown on arable land (Václavík, 2008). There were 22,762 ha of the organic cereals in CZ in 2009 (figures were published in the yearbook of the Organic Farming of the Ministry of Agriculture in 2009). The Council Regulation (EC) No. 834/2007 of 28 June 2007, and the Commission Regulation (EC) No. 889/2008 of 5 September 2008, are the most important European legislative instructions on OF, and are binding for all member states of the European Union." They lay down a permit to solely use organic seed in order to establish organic crop stands. The seed must originate from plants being grown in compliance with OF rules for at least one generation. The seed reproduction is an extremely difficult process (Thommen, A., Schmid, O., 2006). The reproduction crop stand and seed must meet the requirements of the seed certification and authorization procedure as the conventional plants and seed do, but the OF does not allow any pesticides or mineral nitrogenous fertilizers, etc. (Houba and Hosnedl, 2002). Organic farmers may use certified organic seed or farm seed in order to establish the crop stand. They may also apply for an exception (derogation) and use the conventional untreated seed.

There is a long-lasting deficiency of organic seed in CZ. However, exact data are currently not available. Study aimed to analyse the availability of certified organic seeds in CZ and summarize

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the use of each category of seed in practice. To find out the experience of OF with the certified organic seed is also a objective of the study.

Materials and methods

Data concerning the structure of multiplication crop stands, permitted seed and the range of seed at the market, were obtained from the Department of seed and planting materials of the Central Institute for Supervising and Testing in Agriculture and the Ministry of Agriculture. A questionnaire survey was carried out between 2009 and 2010; 329 questionnaires were sent to organic farmers working on arable land, of which 42 % were sent back. The farmers were asked to answer nine questions. The questionnaires were converted into the electronic versions and assessed by the contingency tables in Excel program.

Results

Between 2008/09 and 2010/11 there was a gradual increase in the land area dedicated to organic cereal seed production. They represented, nevertheless, 1.5 % (349 ha) of the total organic land surface in 2009 in CZ. Regarding the average model seeding rate of 220 kg.ha^{-1}, we would need 5,008 t of seed to plant the entire area of cereals in a particular year. In 2009, the average grain yield of organic cereals in CZ represented 2.94 t.ha^{-1} (Ministry of Agriculture, 2009). It means we would need the reproduction areas of 1,703 ha of 100 % of the seed were allowed to be used. In 2009, seed were reproduced on 20.5 % of the required land surface. It is unrealistic to expect that certified organic seed 100 % seeds. Comparison between the allowed multiplication land surface and amounts of allowed winter wheat seed shows that the major part of harvested seed have not been certified as organic seed in 2009 (Table 1). In the same year, 90.95 t of the winter wheat seed were certified as organic. However, this winter wheat was grown on 125 ha of land. It means that the major part of the harvested material did not meet the requirements of the seed certification procedure (same as the major part of the other cereal species). The range of the reproduced organic cereal species is very narrow. The growing of the suitable varieties on the local farm land and climatic conditions are strongly limited, becouse of limited organic seed availability.

Since 2009, organic farmers used a lot of conventional untreated seed they had asked for. In 2009, 398 exceptions for 1,664 t of seed were granted. Table 2 shows the evident difference between the amount of allowed conventional spelt wheat and triticale seed. The sufficient amount of the organic spelt wheat seed were multiplicated in 2009, organic farmers could, therefore, use only organic seed. On the other hand, triticale was in a high demand, *but there was almost no organic seed*.

Except for the certified organic seed (Table 1) and conventional untreated seed (Table 2), the organic farmers also use their own (so called farm saved) seed in order to establish the crop stands. There is not enough information on the applied amount of farm seed. Therefore, the following model amount of seeds was used for 2009: amount of certified organic seed = 281 t/seeding rate of 0.22 t.ha^{-1} = 1,277 ha of the seeded surface; amount of conventional untreated seed = 1,664 t/seeding rate of 0.22 t.ha^{-1} = 7,564 ha of the sown surface. The surface of grown cereals represented 22,762 ha – 1,227 ha – 7,564 ha = 13,971 ha where the farm seed were applied. The

proportion of each seed type is presented in Chart 1. The certified seed should not be ideally resown more than once, which is not, nevertheless, respected.

Tab. 1: Seed production and certified seed offer in the Czech Republic

Species	2008–2009				2009–2010				2010–2011[2]	
	Seed production		Certified seed		Seed production		Certified seed		Seed production	
	NV[1]	ha	NV	t	NV	ha	NV	t	NV	ha
Winter wheat	5	72	4	73	7	125	5	91	4	102
Spring wheat	1	13	1	23	-	-	-	-	1	15
Spelt	2	66	2	159	2	89	2	79	3	143
Spring barley	2	21	1	21	2	26	-		3	20
Triticale	-	-	-	-	1	18	1	8	2	45
Winter rye	-	-	-	-	1	8	1	8	2	37
Naked oat	2	28	2	23	2	34	2	28	1	15
Oat	2	27	-	-	2	50	2	40	2	44
Total	14	227	10	299	17	349	13	254	18	422

[1]NV = number of varieties; [2]no seed certified

Tab. 2: Exceptions for conventional untreated seed use in the Czech Republic

Species	2009		2010	
	Number of exceptions	Seed (t)	Number of exceptions	Seed (t)
Bread wheat	66	271	112	515
Spelt	5	78	9	8
Barley	47	129	77	319
Triticale	86	651	76	455
Rye	23	12	20	42
Oat	161	523	174	444
Total	398	1664	468	1783

Tab. 3: Organic farmers' attitudes to seed issues

Reason for farm seed use (%)		Use of organic seed database (%)		Would you prefer organic seed (%)	
Suitability of varieties	16	Yes, I use the database	51	Yes, I would	75
Seed price	37	Yes, I sometimes use	16	No, I would not	14
Transport distance	18	I know but I do not use	20	I do not know	11
Supply	24	I have no access	7		
Others	5	Others	6		

A further part of the questionnaire aimed to find out how organic farmers find and gather information on seed. The main information resources are as follow: internet, consultancy, from the Association of Organic Farmers and seed companies. The official database of the certified organic seed (http://www.ukzuz.cz/Folders/2295–1-Ekologicke+osivo.aspx) is also frequently used by the organic farmers (Table 3). The obligation to document the absence of the certified

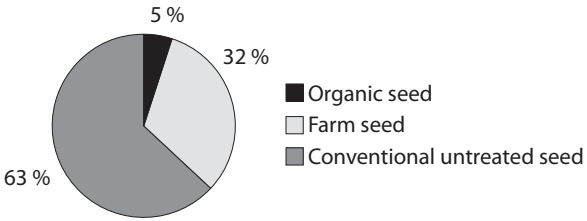

Fig. 1: Cereal seed use in organic farming in the Czech Republic (2009) (%)

organic seed when applying for an derogation in the conventional untreated seed use, is one of important reasons. Most of the organic farmers (75 % of the farms) would prefer the certified organic seed if the supply was sufficient and prices favourable (Table 3). Only 14 % of the farms explicitly prefer conventional untreated seed. The suitability of varieties and transport distance are another reasons for the farm seed preference (Table 3).

Discussion

The application of organic seed becomes more important in many European countries thanks to the legislative measures and increasing demand for the organic products (Václavík, 2008). It is, nevertheless, one of the most developing parts of the organic farming system (Shamash, 2008). However, the total supply of organic seed is still quite low. The high proportion of common farm seed coming from repeated seeding contributes to a reduction of the yield rate of the crop stands (Lammerts van Bueren, E. T. et al., 2003). The seed certification process is very demanding, as the organic seed undergo the control of the Central Institute for Supervising and Testing in Agriculture and of the organic farming (Houba, Hosnedl *et al.*, 2002), but organic farming regulations do not allow to use any supportive, etc. (Lampkin, 1990).

Conclusions

There is a deficiency of the organic seed in the Czech Republic. The authorized multiplication land surface is insufficient. Most of the seed have not been certified as organic, especially because of their health. Therefore, the seed certification process should be revised (nowadays, the same requirements are imposed on the organic and conventional seed, however the organic farming system is not allowed to use any pesticides). Seed producers should also be motivated, by special benefits and grants for example. It is also possible to import the seed from the countries providing a sufficient supply of them, but just for a limited period of time.

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