Organic rapeseed production in Finland

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Implications

Most of the 56 organic rapeseed growers interviewed in this research acknowledged modest success in rapeseed yield (often under 500 kg/ha, on average about 800-900 kg/ha), but kept continuing cultivation because of other benefits such as good price and well functioning markets of the product, flexibility in sowing time, possibility to cultivate a temporary fallow to fight the weeds, and need for protein rich fodder for own or neighbor livestock. The main complications in rapeseed cultivation were unfavorable weather conditions, pests and insufficient nutrient levels for optimal yields. The farmers followed carefully the instructions from research and advisory institutions, but were also innovative in developing their own solutions to problems. Because of different conditions with neighboring farms, different soil types and climatic conditions, different sources of fertilizers and availability of pollinators, tailor-made solutions for every farm individually are imperative. Despite problems most farmers were optimistic and were readily investing in the future e.g. by renting and buying more field area for cultivation. Success in organic rapeseed cultivation seems to coincide with optimism, good relationships with family members and neighbors, availability of affordable fertilizers and relatively large cultivation area for efficient crop rotation.

Background and objectives

Rapeseed production in Finland is usually based on spring turnip rape (*Brassica rapa* ssp. *oleifera*), the cultivation area of which varies between 50-80 000 ha in conventional farming and about 2-2500 ha in organic farming. Spring oilseed rape (*Brassica napus* ssp. *oleifera*) can be grown in southern Finland on a limited cultivation area (about 15 000 ha in conventional farming, not mentioned in statistics of organic farming), as the growing season in most areas in Finland is not long enough for oilseed rape to reach suitable quality. The situation is expected to change in near future, though, when climate becomes warmer and growing season longer (Peltonen-Sainio et al. 2009). The yield of spring turnip rape is rather low (1300 kg/ha in conventional farming, 800-850 kg/ha in organic farming), while that of oilseed rape is slightly higher, about 1700 kg/ha. Some attempts are regularly made in both conventional and organic farming to grow autumn-sown turnip rape or oilseed rape, the yields of which are higher in theory, but often lost due to failed overwintering, especially in Southern Finland, where the snow cover may be thin and inconsistent. The cultivation of spring turnip rape has major challenges in Finland, mainly due to dry and cool growing conditions early in season and wet harvesting conditions in the autumn. Dry and cool conditions early in season slow down the growth of rapeseed seedlings, thereby delaying or even preventing recovery of seedlings from the damages inflicted by pests, and providing space for invasions of weeds. The most common pests for rapeseed in Finland are the pollen beetle (*Meligethes aeneus*) and flea beetles (*Phyllotreta* sp.). There are no efficient and affordable protection methods in organic farming against pests, although some biological protection solutions are becoming more easily available (Hokkanen 2008). Weeds, again, while they do represent a problem, can be fought against with cultivations, temporary fallow and autumn ploughing. Due to carefully followed crop rotation practices, pathogens are rarely a problem in organic rapeseed production.

A serious problem in organic rapeseed production is poor nutritional status of the soil. Fertilization is most often given as cow, pig, horse or poultry manure, composts or meat and bone meal. Rapeseed needs a good nutritional status for early growth, and organic nutrient products are not always adequately available. Special fertilizer products (such as

meat and bone meal), again, have increased in price during the last years, almost beyond the reach of organic farmers.

The objective of the present research was to interview organic rapeseed growers to find out how they have solved their rapeseed cultivation problems, what the yield levels are and how they have been able to market the yield.

Key results and discussion

Most organic rapeseed growers had started organic farming, and also organic rapeseed production, in 1996, just after Finland joined the EU. The farm size of the interviewed farmers was quite big, from 50 to 150, sometimes over 400 ha, but organic rapeseed area was quite small, around 20 ha. The farmers told that they follow carefully the cultivation instructions of research and advisory institutions. Rapeseed is cultivated with long crop rotation (about 4-5 years between oilseed crops), ploughing in the autumn, several cultivations (temporary fallow) in the spring, extra fertilization to meet the needs of turnip rape, and late and thin sowing (beginning of June, 6-10 kg/ha). Despite the efforts, the yields of spring turnip rape are often very low (under 500 kg/ha), mainly due to early summer drought, pests, and rainy autumn conditions that may hamper harvesting and thereby destroy the yield (shattering of seeds or impossible harvesting because of too wet soil). 1000 kg/ha is mostly considered a successful yield. The market for rapeseed is, however, very good and the price is quite high, which seems to be one of the main reasons why organic rapeseed cultivation continues despite the serious problems. Rapeseed is also not produced just for oil, but for the seed pellet after oil extraction, which is an excellent protein-rich feed for the cattle. Some farmers have an agreement with their neighbors to produce rapeseed pellets for the neighbor cattle, the manure of which they in turn can use as fertilizer.

One reason to cultivate rapeseed is the late sowing time, which allows the farmers to change from a poorly overwintered crop such as rye (*Secale cereale*) to rapeseed and still keep in pace of sowings. Some farmers see the late sowing time as an opportunity to clear a problematic field from weeds with the possibility of conducting several cultivations with a temporary fallow before sowing.

Organic farmers in Finland that keep cultivating spring turnip rape are often rich with self-made innovations and ideas for cultivation. Most farmers have also acquired bee hives near their fields to assist with pollination. The farmers will probably continue producing rapeseed, but real production success may become possible only with the more favorable growing conditions that climate change may bring to Finland. With milder conditions, more productive oilseed rape and higher yielding winter forms of oilseed may be taken into production. However, pest problems may become more serious with milder conditions, calling for profound research and solutions for the future.

How work was carried out?

The results are based on an interview made among the organic spring turnip rape producers in Southern Finland in 2011-2012. The interview was performed with 56 organic rapeseed growers in four agricultural advisory regions.

References

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