

Special

Maize

Veeteelt – January 2017

After seven years maize-under-film has become 'common knowledge', but a firm breakthrough has yet to happen. What happened in the mean time, and why are farmers hesitating to embrace the technique massively?

Text: Tijmen van Zessen

High costs of growing maize-under-film prevent a breakthrough in the Netherlands and Belgium.

A luxurious coat for forage maize

To grow maize-under-film is an Irish innovation. The film cover over the seedbed causes a higher temperature, to accelerate germination and growth. All together the harvest takes place 3 weeks sooner.

"Provided the carrying capacity of the soil permits, maize-under-film can be sown half April. The early harvest limits the risk of structure damage", says Hein-Willem Leeraar. The consultant introduced the technique in the Netherlands in 2009. He saw especially chances for growing maize on northern soils, where growing maize is difficult. Apart from the advantage of an early harvest growing maize under film guarantees a plus of a 1.000 kg of starch per ha, roughly 12 to 13 % more than normal. "The maize plant benefits sooner and therefore more from the sunlight in the month of June. This extra photosynthesis contributes to a higher starch content."

To settle with weeds

In spite of these advantages the growing method is not very common yet. The first years experiences were positive and in 2012 the acreage in the Netherlands rose to 1.200 ha. But the wet spring caused teething, causing the acreage in the year after, to drop with about 30 %. "For example the sowing machine is 500 till 600 kg heavier than normal. The result were fairly deep tracks", Leeraar explains.

Last year the acreage for maize-under-film was somewhere around 650 to 700 ha's, and according to importer there is a yearly increase of 2-3 %. Together with contractors the growing technique has improved. "In front of the tractor there is a pressure roller, so that the weight is more evenly divided. An air exchange system on the tyres has the same effect", explains contractor Willem Heeringa. Another issue that needed to be dealt with is high weed pressure. Caused by the higher temperatures under film not only the maize seed germinates faster, also the weed seeds are given free rein. The last year a better soil herbicide has been tested and according to Heeringa successfully. "The machine has also been adjusted, so that less clogging occurs. And if still so, the tractor driver gets a signal in the cabine that the pesticide is not flowing well." Finally the way of ridging has improved, making the seedbed more even with less big cloths. This improves the working of the soil herbicide.

300 € more expensive

All in all an acreage of 650 ha on a total of 210.000 ha in the Netherlands is still modest. According to Hein-Willem Leeraar the conditions for derogation - 80 % grass in stead of 70 % grass - have not helped. "As a result, amongst others, the total acreage of maize has decreased by 10 %. Also the low milk price plays a role, we notice dairy farmers economize.

The extra initial cost for growing maize-under-film is somewhere around 300 € per ha, and in the best case scenario (no extra weed control) € 185 per ha (table 1).

Invest in soil quality

Jos Groten, maize-researcher in Wageningen Plant Research (Wageningen University Research), considers especially the advanced moment of the harvest an advantage of maize-under-film, without a yield loss. "The soil gets ever more important. If you can harvest earlier, a green manure can already be applied half September. That is beneficial for the organic matter balance." Indirectly this results in a higher yield in the long term. Next: on soils with less carrying capacity the chance for bad conditions during harvest time are less. Apart from the earlier harvest Groten, just like Leeraar, considers the higher starch content an advantage. The maize will silk earlier in the season and can therefore produce more starch.

Groten is more sceptic about yield increase. "If you sow and harvest 3 weeks sooner, the yield is not higher. Do you take a late variety, the yield is higher, but not within the framework of an earlier harvest. Financial advantages are found in an earlier harvest, a higher starch content and higher yields on the long term, in the North and the South of the Netherlands as well as in Flanders."

Due to classic breeding for the last 7 years the moment for harvesting is forwarded 2 weeks. The hesitation farmers show vis-à-vis maize-under-film can also be related to this fact. According to Groten the shortening of the season is especially caused by additional variety research, for extreme early varieties, resulting in forwarding the moment of harvest with maximum 2 weeks as compared to the most early varieties on the recommended variety list.

Limited success in Flanders

In Flanders the response is varying (see interview) . Jan Halewijck talks about a limited success. This consultant for the Farmers Union sees partially the derogation as a reason. "If a farmer first has to harvest a cut of grass, he can not take advantage of the earlier harvest, because first the grass needs to be cut, usually in the first week of May. After that the soil is warm enough by itself."

"And even when teething is considered to have taken place the extra costs hardly outweigh the benefits, even though there is more experience around", says Halewijck.

Interview

Jan Deeren: "Satisfied about the result, but temporarily no continuation"

The Deeren – family from the Flemish town of Veurne has built their experience on growing maize-under-film for some years. Jan Deeren explains he is very well satisfied about the yield of the crop. "Last year the maize yielded 23 tons of dry matter per ha, for us the highest yield. The crop was grown on a first years plot, after grass, always yielding higher therefore. Experience teaches us that maize under film gives a 30 % higher yield as compared to maize in the open. Often the quality is better as well."

Still the dairy farmer is not continuing growing maize-under-film. "It is still difficult to control the weeds on our heavy clay soils. Early in the spring the soil is coarse, with less efficient soil herbicides as a result. Especially for the later germinating weeds, as bindweed, additional pesticides are necessary", explains Deeren

Table 1 : costs for growing maize with and without film in € per ha (source: Samco, Heeringa Bros and NMI)

	Without film	With film	Difference
Pre cutting the grass	125	125	0
Ploughing (ditched land	120	120	0
Harrowing (2x)	250	250	0
Sowing	70	150	80
Seed	200	185	-15
Pesticides	150	130	-20
Spraying	30	0	-30
Film	0	270	270
Fertilizer	150	70	-80
Harvest	400	380	-20
Total cost	1495	1680	185