

REDUCED PESTICIDE USE IN FODDER CROPS

Weeding maize on the row

To safeguard the environment and public health, pesticide use must be reduced as much as possible. Two techniques for reduced pesticide use in maize are used on the Derval farm, located in the Northwest of France. Both methods focus on weeding maize on the row, the first one pre-emergence the second post-emergence, by hoeing. Suitable equipment is required for these techniques, but results indicate that herbicide use can be reduced up to 70%.

Pesticide use in French dairy systems

French plain (as opposed to mountain) dairy systems, representing about 60,000 farms (75% of dairy farms) and 80% of the French milk production, are largely based on maize and cereals (own or bought). Pesticide use is on average estimated around 3,000 g of active matter/hectare UAA (utilized agricultural area). This use not only presents a risk of surface and ground-water contamination, but also risks air contamination. Reducing pesticide use is thus not only necessary for environmental gain, but should also benefit farmer and public health, and ultimately, farm economics. The feasibility of pesticide reduction techniques should thus be evaluated with this in mind, and should include economic, environmental and social aspects, to ensure a sustainable production system.

Weeding maize on the row: two different methods

In the Derval farm, two techniques are used to reduce the use of pesticides in maize production. Both techniques focus on treatment on the row, and combine a chemical and mechanical treatment. The first technique aims to reduce pesticide doses by focusing on pre-emergence treatment, in the early development stages of the weeds. Having suitable meteorological conditions is very important for this method. The second technique aims to reduce pesticide use, by treating only on the row at sowing or in the post-emergence period.

Method 1: Pre-emergent chemical treatment on the row

The seeder must be equipped with a spraying system. The chemical treatment is done at the time of sowing.



Method 2: Post-emergent chemical treatment on the row

In collaboration with a technical school, Derval KTC built a specific ramp of 9 metres, usable after sowing, to allow treatment of the maize row at 3-4 leaf stage.



After this chemical weeding, a mechanical treatment by hoeing is performed.



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The effects

	Method 1	Method 2
Pre-emergent treatment	Chemical on the row	None
Post-emergent treatment	Mechanical, inter-row	Chemical on the row + Mechanical, inter-row
Advantages	Reduction of 70% of the doses applied on maize No observable impact on maize yield	Reduction of 70% of the doses applied on maize No observable impact on maize yield
Weaknesses	Need for a seeder equipped with a spraying system Risk for clogging of the spray nozzle Number of mechanical interventions Need for a GPS	Requires specific material (ramp) Number of mechanical interventions

PRACTICAL RECOMMENDATIONS

Bruno Couilleau, crop manager at Derval

The use of GPS on the tractor is a real advantage for the effectiveness of the first method, i.e. the pre-emergence treatment. However, this method is more delicate because the risk of clogging the nozzles during treatment is real and difficult to control.

When the weeding is done in post-emergence you can choose the most suitable herbicide for the weeds that are present. However, for the second method, it may be necessary to have more than one mechanical treatment (hoeing), depending on the weeds. Nevertheless, this method is more and more used, with farmers constructing their own processing ramp.



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