IIRB Seminar
‘Advances in combined weed control’
Projects to reduce the use of herbicides

Is there nothing more to say about weed control?
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13th May 2011, Sancourt (F)

Why we have to control weed?

Competition, for instance in:
yield losses
water, light, nutrients
harvesting
control costs
host of pest and diseases
restore the seeds reservoir...

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Why we have to control weed?

What’s the current scenario and what are tendencies for the next future?

How to improve (and fulfill the Directive)?

Competition of weed: yield losses

Yield (t of 16º/ha) according to the time free of weed competition

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Time free of weed competition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Free of weed</td>
<td>Jan</td>
</tr>
<tr>
<td>Natural weed infestation</td>
<td>30</td>
</tr>
<tr>
<td>Clean till May</td>
<td>90</td>
</tr>
<tr>
<td>Clean till June</td>
<td>90</td>
</tr>
<tr>
<td>Clean till July</td>
<td>30</td>
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Yield (t of 16º/ha) according to the time free of weed competition
When the competition of weed begin?

• Delay in weed control => Critical Period of Tolerance (CPT)

The begin of competition depends on: density of population, species…

- Torno (81 plants/m²): CPT: 4% => 13%
  - More aggressive than Anar

- Angar (42 plants/m²) + Galap (4 plants/m²): CPT: 21% => 60%

What's the current scenario and what are tendencies for the next future?

Previous crop in the rotation (% of the area)

Field emergence (%)
Earlier sowing, better field emergence and shorter emergence period, what is the explanation for this contradiction?

- 1990-1995: sowing time 25 March
- 2005-2010: sowing time 10 March
- 15 days for the early sowing plus 10 days for the fastest emergency

How long the emergence lasts?

0 5 10 15 20 25 30

|------|-----------|-----------|

Sooner plants emerge are more competitive because they cover soil surface earlier.

**Source:** AIMCRA

Herbicides: grams of active ingredient/ton of sugar beet

- 1990: 100 grams
- 2010: 80 grams (62% reduction, 3% yearly)
- 2020: 40 grams (30% reduction, 3% yearly)

**Source:** AIMCRA

The quicker and uniform the plants establishment are, the higher the competition to weed is.

**Priming**

**Control**

**15/04/2009**
Emergence speed

Effectiveness of herbicides on broadleaf weed and *P. aviculare* according to the irrigation management. A reduction of 25% in a.i. is possible, even with difficult weeds.

Conventional irrigation
Recommended irrigation

New herbicide formulations
Better penetration and more rapid absorption (penetration test). Influence of the type of formulation in relation to phenmedipham penetration through the leaves of *Chenopodium album*.

Additional reduction of active ingredients by combining chemical and mechanical control (ITB shows 2009 and 2011).
Some ideas to discuss

Weed control is a package of measures all of them are important and should be used in a chained way.

Sugar beet is a good competitor when leaves cover the soil, but needs for help in the beginning.

Complementary tools are necessary to fulfill EU rules for integrated management.

How to improve (and fulfill the Directive)?

To plan weed control throughout the rotation
Checking of the sprayers
To educate and training farmers and technician
Demonstration fields
Treatment thresholds

Thank you for your attention. I hope to see you soon.