

# Sustainable maize growing with the aid of strip tillage

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## MGA Site & Maturity Group Selector

The aim of the selector tool is to identify if your field is suitable for maize growing and if suitable from which maturity group you should choose your varieties. Answer the field specific questions recording the score in the form set out in Step 9. Use the score generated to identify suitable varieties in the following tables and graphs.

### • Step 1

What is your target harvest date?

	Your score
15 <sup>th</sup> - 22 <sup>nd</sup> September	3
23 <sup>rd</sup> - 30 <sup>th</sup> September	2
1 <sup>st</sup> - 7 <sup>th</sup> October	1
8 <sup>th</sup> - 15 <sup>th</sup> October	0

Harvest should be targeted at mid to late September to optimise the yield and quality of maize silage. The later the crop is harvested, the greater the risk of run-off and soil erosion. Earlier harvest also provides an opportunity to drill following crops in a timely manner. In cooler summers maturity will be slower and consideration should be given to this when choosing the most suitable variety.

### • Step 2

What is your target drilling date?

	Your score
Before 10 <sup>th</sup> April	0
10 <sup>th</sup> - 20 <sup>th</sup> April	1
21 <sup>st</sup> - 30 <sup>th</sup> April	2
1 <sup>st</sup> - 10 <sup>th</sup> May	3
After 10 <sup>th</sup> May	4

Maize matures at a standard rate. As a consequence harvest date will be sooner for earlier drilled crops.  
Note : Maize drilling date should be based on soil temperature and ground conditions at the time, in preference to date.

### • Step 3

What is the altitude of your field?

	Your score
0 - 45m	0
46 - 90m	1
91 - 135m	2
136m +	3

What is the Aspect of your field?

	Your score
North Facing	1
Highly exposed to wind	1

Altitude does have an effect on the maturity of the crop, but this can be outweighed with south facing slopes.

So, if you are growing in the more marginal higher areas, ensure that the crop is grown on a south-facing slope if possible.

North facing and or exposed fields will be slower to mature than others.

### • Step 4

What are your likely field characteristics?

	Your score
Light / Fine	0
Medium / Good	1
Heavy / Cloddy	2
V Heavy / V Cloddy	3

Soil type affects seedbed preparation and quality; the ability to retain moisture during the growing season will influence harvesting conditions. Therefore, fields that are likely to produce a cloddy seedbed or give rise to difficult harvesting conditions should be allowed for.

### • Step 5

What is your annual rainfall?

	Your score
Low (250mm-600mm)	0
Medium (601-845mm)	1
High (850mm+)	2

When soil becomes wet it generally gets colder leading to slow maize growth.

In high rainfall areas soil wash and erosion is also more of a concern.

- **Step 6**

What is the average gradient of your field?

Your score

<3° Slight	0
4 – 10° medium	1
>11° steep	2

While water will run off any compacted field whether flat or sloping, the speed built up when running off steeper fields can result in more damage being caused.

(For slightly sloping, free draining fields Step 7 can be ignored)

- **Step 7**

How close to the lowest edge of your field to a watercourse, and or gateway onto a road, and or building, and or other environmental feature eg SSSI etc?

Your score

More than 100 metres away	0
10 – 100 metres away	1
Within 10 metres with buffer/hedge	2
Within 10 metres no buffer/hedge	3

While soil movement within your own fields is not ideal, such, within field movement, is not as challenging to the environment as that which leaves the farm.

Post harvest cultivation, plus the establishment of a green cover, either within or after maize, will go a long way to reduce soil and water movement, both within and beyond the field boundaries.

- **Step 8**

Which count/retion are you in?

Please select from the table

County	Score	County	Score
Berkshire	0	Lincolnshire	1
Buckinghamshire	0	Norfolk	0
Cambridgeshire	-1	Northamptonshire	1
Cheshire	1	Nottinghamshire	1
Cumbria	2		
Devon & Cornwall (North)	2	Northumberland	3
Devon & Cornwall (South)	1	Oxfordshire	0
Derbyshire	2	Scotland	3
Dorset	0	Shropshire	0
Durham	2	Somerset	0
Essex	-1	Staffordshire	1
Gloucester	0		
Glamorgan	1	Suffolk	0
Gwent	1	Surrey	0
Hampshire	-1	Sussex	-1
Herefordshire	0	Warwickshire	1
Hertfordshire	0	Wiltshire	0
Kent	-1	Worcestershire	1
Lancashire	1	Yorkshire (North)	2
Leicestershire	1	Yorkshire (South)	1
<b>Wales</b>			
North East Wales	1	South West Wales	2
North West Wales	2	South East Wales	1
Central	2		



- **Step 9**

*Calculate the most suitable range of varieties by their MGA group*

<i>Factor</i>	<i>Your Score</i>
1. Harvest date	___
2. Drilling date	___
3. Altitude/Aspect	___
4. Soil characteristics and seedbed quality	___
5. Annual rainfall	___
6. Gradient	___
7. Proximity of environmental features	___
8. County	___
<b>Total Score</b>	___ *
* Now go to the table of varieties with the same MGA group number as your score	

\*If the process generates a MGA maturity group number that is not available on the list, your field is high risk in terms of soil/water runoff if compacted during harvest. You may also wish to consider whether maize is suitable for that particular field and or whether plastic film may speed up maturity.

**Favourable or unfavourable list?**

Farmers should choose varieties from the **Less Favourable** list if their crops historically struggle to reach 30% DM regularly at the desired harvest date. All other growers should choose from the **Favourable** list.



# Strip tillage

- Minimal soil disturbance, but enough depth for maize to access nutrients, enough tilth
- Reduced cultivation costs and fuel use
- Residues from previous crop can protect from wind blow
- Low disturbance conserves soil carbon
- Requires glyphosate or similar, followed by standard pre-em/post-em herbicides

# Oekosem rotary strip till

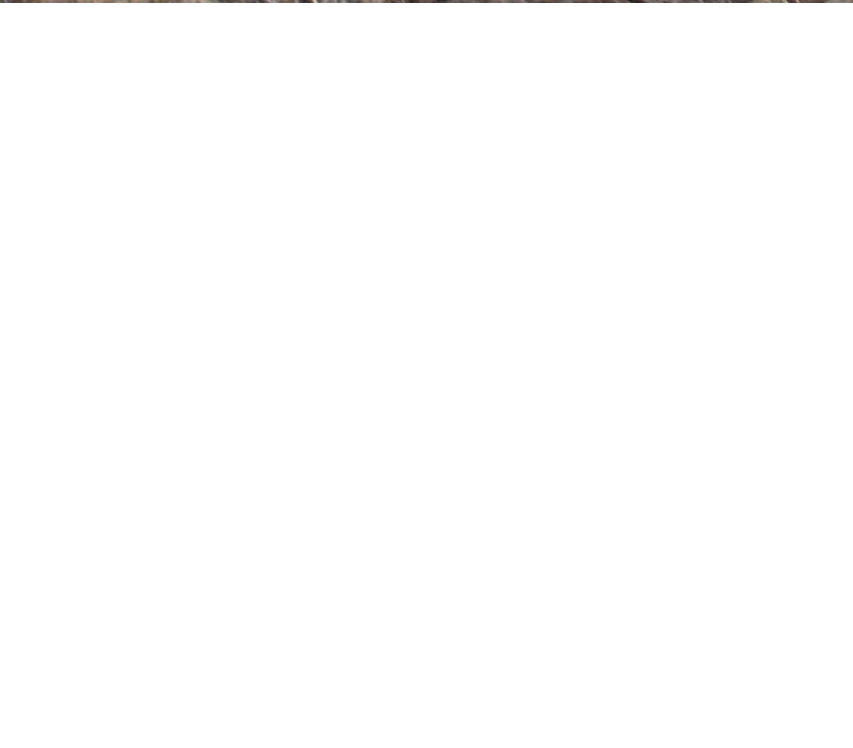




# Duro strip till













- Select machine type to suit soil type – on heavy wet land use RTK to make strips first (possibly with digestate injection), and drill later.
- A deep tine enables maize root to explore volume of soil for nutrients – lower additional N requirement
- Some soil types and conditions are difficult for strip tillage, especially after beet/potatoes when there is little surface soil structure; use inversion tillage.
- Light, shallow cultivation to incorporate digestate or slurry negates some benefits