

Sectoral Road Map: Tillage and Energy Crops

Market and policy issues

- The medium-term outlook for cereal markets is positive, with steadily increasing global demand and high oil prices contributing to improving prices. Longer-term forecasts are for increasing demand leading to increased prices.
- Crop production for food/feed and energy use is forecast to increase because of poor margins in the drystock sector, labour issues, feed demand from an expanding dairy sector, and emerging demand and targets in the bio-energy sector.

Shape and size of the sector in 2018

- The area devoted to tillage and energy crops is expected to increase by up to 46%, but energy policy issues will determine the scale of increase. In line with the objective of promoting 'Brand Ireland' in the *Harvest 2020* Report, it is envisaged that more homegrown cereals will be used, particularly in pig, poultry and dairy diets.
- The number of full-time tillage farmers will be about 1,000, producing close on 60% of output.

Crops	('000ha)		Change (%)
	2007-'09	2018	
Wheat	90.7	120	32
Barley	178.2	200	12
Oats	21.6	30	39
Total cereals	290.5	350	20
Maize	24	40	67
Oilseed rape	3.7	20	441
Perennial bio-energy crops	3.0	70	2233
Potatoes	12.2	10	-18
Other crops	10	10	0
Total non-cereals	52.9	150	184
Total crops	343.4	500	46

- There will be about 11,000 part-time farmers with tillage and energy crops.
- Most tillage farmers will be availing of environmental scheme payments.
- The area of perennial bio-energy crops (mainly miscanthus and willow) is forecast to grow to 70,000ha to meet our national and EU commitments. Oilseed rape is expected to increase to 20,000ha to supply high-value food, feed and industrial ingredients.
- Maize and other annual forage crop production will increase significantly, as dairy farmers look to expand with restricted individual farm land bases.

Technical performance

- Cost reductions of 5% will be achieved, focusing on all inputs, with particular emphasis on machinery and labour efficiency.
- Against a background of pathogen resistance development, difficult rotations and EU directive restrictions, a target of achieving a 1% annual yield increase in wheat and barley by 2018 will be achieved.
- Use of decision support services such as soil analysis and integrated pest management techniques will increase to 95% of growers.
- Half of commercial growers will be recording physical and financial details and comparing to Teagasc benchmarks.
- 70% of commercial growers will be using appropriate soil management techniques, which are conducive to high yields and soil health.
- 95% of growers will be following appropriate nutrient management plans.
- The cost of establishment of miscanthus will be reduced by 30% by home production of planting stock.
- The cost of drying willow chips will be reduced to below €10/tonne.

Environmental and land use implications

While environmental regulations will be a constraint on production, the tillage crops and renewable energy sectors will make a positive contribution to improvement of the environment and mitigation of some of the problems caused by climate change:

- Targeted input application and regulatory controls will reduce nutrient and pesticide loadings.
- Increasing yields and targeted use of inputs will reduce the greenhouse gas (GHG) cost per unit of production to among the lowest in Europe.
- Growing 70,000ha of energy crops to meet electricity and heat targets could mitigate up to 1.1 million tonnes of CO₂. The use of energy crops alone to meet both the co-firing and renewable heat national targets would mitigate up to 2.8 million tonnes of CO₂.
- Growers will adopt production systems that are environmentally acceptable and yet economically viable.
- The capacity of tillage and energy crops to better utilise manure and sludge will be increased.

Research and advisory actions required

- The crop research objective of developing productive, competitive and sustainable production systems will be achieved by focusing primarily on:
 - maximising crop yield potential by developing our understanding of the soil, crop, management and climate factors that limit crop yield;
 - reducing crop production costs by focusing on fertiliser, disease control, machinery and seed, as well as weed, pest and lodging control; and,
 - developing high-value markets for tillage crop products: this has the potential to improve economic viability and provide a wider range of rotational options.
- Biotechnology will be used for the development of marker- and genomics-assisted breeding approaches to achieve efficient improvements of potato, cereal and potential bio-fuel species.

- The emerging bio-energy sector will be supported through research on production and effective utilisation of first- and second-generation bio-fuel crops.
- An effective model for technology transfer through 'BETTER' farms (Business Environment Technology through Training, Extension and Research) will be progressed.
- The use of information and communications technology (ICT) discussion groups, BETTER farms, e-crops, and the e-Profit Monitor will be expanded to support technology transfer and business development.
- Share farming will be facilitated and promoted to improve farm structures.
- Sustainable organic crop production approaches that address the issues of nutrient cycling and weed/disease control will be developed.

Comment

The tillage and bio-energy crops sector will make a positive contribution to food/feed supply, energy security, environmental improvement, economic activity and mitigation of problems caused by climate change.

The development of bio-energy will depend substantially on Government measures in support of policy.

Energy crops can make a substantial contribution to reducing dependence on energy imports but can also play a substantial role in mitigating national GHG emissions.

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The road map for tillage is available on www.teagasc.ie.

Technical efficiency improvements

Factor	Sector average		Top 10% of producers 2018
	Current	Target 2018	
Yield improvement wheat t/ha	8.6	9.5	10.0
Yield improvement barley t/ha	6.6	7.3	7.8
Cut costs wheat €/ha	1150	1100	1050
Cut costs barley €/ha	1000	950	900
Increase milling wheat production	<10,000t	70,000t	
Reduce establishment costs of miscanthus €/ha	2,900	2,000	1,800
Reduce drying costs of willow €/t	30	10	5