



# Perennial crops for bioethanol



Switchgrass is a perennial crop native to North America and has a wide range of climatic adaptability, making it adaptable to the drought conditions and tolerant to severe water stress conditions. Switchgrass has a good potential to be biomass feedstock because it has high net energy production per hectare, low production costs, low nutrient requirements, wide geographical adaptation, low ash content and adaptation to marginal soils and increased potential for carbon storage in soil. The same applies to Miscanthus, another perennial crop with similar characteristics.

Therefore, growing Switchgrass or Miscanthus on marginal and low productive agricultural lands can increase the farmers income through access to opportunities on bioenergy and bio-products markets. CRES, partner of the BIKE project, is developing a pilot cultivation of perennial crops in Italy and Greece for the production of lignocellulosic ethanol.



**Growing biofuel feedstock with no ILUC-risk and negligible consumption of resources**



**Opportunity to develop a local value chain and to improve local socio-economic conditions in rural area**



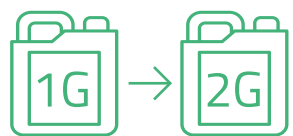
**Low-cost feedstock supply for the production of advanced biofuels**



**Advanced biofuels produced in this way are compliant with the EU Renewable Energy Directive**



**Ligno-cellulosic ethanol available for use in the transport sector (light and heavy-duty vehicles)**



**Energy potential is estimated to be two time higher than the first generation biofuels.**

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# Key principles

## Low-ILUC risk feedstock

Being cultivated on arid/abandoned land, perennial crops like switchgrass and miscanthus respect the principles of RED II thus being categorized as a Low-ILUC risk feedstock, capable of producing renewable fuels and creating new economic opportunities for local communities in less developed areas.

## Sustainability

Lignocellulosic ethanol is known as a major route today to sustainable fuels, and this has been proved by industrial scale demonstrations. The Lignocellulosic ethanol market is already growing given the vehicle hybridization, gasoline engines are prevalent in today's vehicles fleet and the blending of ethanol with gasoline is one the fastest ways to decarbonize the transport sector.

## References

Alexopoulou E., Handbook with fact sheets of the existing resource-efficient industrial crops, MAGIC project (2018).



[bike-biofuels.eu](http://bike-biofuels.eu)



More information:

[www.cres.gr](http://www.cres.gr)