The concept of “Fuel AND Food” explained

The ILUC factor

Internationally, using agricultural land for the production of bio-energy crops has been subject to criticism. Food prices may go up, as less agricultural land becomes available for food production. This results in extra demand for land to be taken into production. This effect of *Indirect Land Use Changes (ILUC)* has negative consequences for sustainability. Increased demand for land is leading to increased forest destruction, wetland drainage and release of greenhouse gasses worldwide. In fact, in some cases the ILUC effect may even outweigh the *direct* effects of bioenergy production, in terms of its impact on the climate and overall sustainability.

Avoiding ILUC

The ILUC issue is very much subject of international debate. How to quantify this effect? And, most importantly, how can we help avoid it? At this moment ILUC is not yet included in international legislation, nor in international sustainability standards such as the Dutch NTA 8080. Yet, its inclusion seems just a matter of time. Without a measure for ILUC effects, the fight against global warming and other sustainability initiatives cannot be truly successful. One way to address the problem is by taking degraded and marginalized land back into production. Countries like Ukraine have plenty of such lands available. However, there is a dilemma to overcome. Using unproductive lands may be good for ILUC avoidance, but may be bad for profit. The reverse is equally true: using good soils is good for profit, but bad for ILUC. How to overcome this dilemma?

The Fuel *AND* Food concept

Part of the solution may be found in perennial grasses, such as switchgrass (*Panicum virgatum*). The Ukrainian-Dutch Pellets for Power project has been carrying out cultivation experiments with these bio-energy crops in Ukraine. A special feature of these crops is that profit may be generated on land where other crops would fail. Given the low investment costs, the relative modest revenues of switchgrass are more than compensated for by guaranteed production on less productive soils. At the same time, certain high-investment (food) crops are best produced on highly productive lands, to generate any profit at all. This suggests that each crop has its specific agro-economic *niche*, as defined by growing site specifications and cultivation economics. The additional value of switchgrass is that it helps increase the productivity of degraded lands. Cultivating switchgrass on low productive land thus helps “prepare” it for future crops with their agro-economic *niche* on more fertile soils.

Switchgrass cultivation in Ukraine

Developing the Food AND Fuel concept in Ukraine

It seems that rather than perceiving bio-energy crops as potential *cause* of ILUC, both food and fuel needs may be achievable through clever land allocation, against minimized ILUC effects. If governments would apply this concept in the allocation of agricultural land, global ILUC effects could be kept at a minimum and overall sustainability would be served best.

Wageningen UR is looking for Ukrainian partners to develop the concept of Food AND Fuel further. Ukraine holds a key position in current and future supply of biomass for energy purposes in Europe and has large areas of land available. Wageningen UR is ready to contribute with its relevant fields of expertise, covering land and soil evaluations, spatial planning, environmental assessments and (energy) crop development, among other.

Contact Wageningen UR

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