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**Sustainability requirements for biofuels in
the EU: implications for Ukrainian
producers of feedstocks**

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Introduction

European renewable energy policy, and particularly EU biofuels obligation and support programs, has been a source of demand for Ukrainian feedstocks. The production of rapeseeds in Ukraine gradually increased more than 20 times between 2001 and 2008 following the timing of EU biofuel initiatives. Over the last few years, the EU constituted a significant share and remained one of the key destinations of Ukrainian rapeseeds export. Export of around 2.3 mln tons of rapeseeds alone brought the sector 1.35 USD billion gross revenue in 2008/09. This underlines the rationale to take full account of any trade-related provisions imposed by authorities in the countries of destination.

The EU Renewable Energy Directive, called to amend and subsequently repeal existing Biofuel and Renewable Electricity Directives, became effective from June 25, 2009 and established binding sustainability criteria for certain types of biofuels. EU member states are obliged to implement its provisions till December 5, 2010. These measures are forecasted to have a significant impact on European biofuels markets and will affect both domestic and foreign market participants.

The biofuels and biomass that fail to meet the sustainability requirements is not counted towards new ambitious renewable energy targets and is excluded from EU and national support programs. Therefore, unsustainable consignments would disappear from the EU biofuel market and both domestic and foreign suppliers are requested to verify compliance with the new requirements introduced.

In this paper we describe sustainability criteria for biofuels set by the EU Renewable Energy Directive and specify the actions needed from Ukrainian stakeholders: the government, traders, and farmers. We concentrate on rapeseed as a relevant feedstock for biodiesel production and do not cover other crops. We are not trying to evaluate the overall effect of the new laws on the global biofuel market but look primarily at the implications for Ukrainian farmers.

The first section provides a brief overview of EU renewable energy targets and support mechanism applied to promote use of biofuels. It also describes rapeseed production and export flows from Ukraine to the EU markets.

The second section discusses sustainability criteria for biofuels and the verification mechanism as envisaged by the Directive and depicts the development of certification schemes at the member states' level (case of Germany) which are likely to affect 2011 harvest trading.

The third section concludes with the implications for Ukrainian feedstock suppliers and recommends further steps needed from policy makers and industry stakeholders to cope with the challenges.

Glossary and abbreviations

Biofuel – a liquid or gaseous fuel for transport produced from biomass.

Biomass - biological material derived from living, or recently living organisms. In the context of biomass for energy this equally applies to both animal and vegetable derived material.

Bioliquid – a liquid fuel for energy purposes other than for transport, including electricity and heating and cooling, produced from biomass.

Default value – a value derived from a typical value by the application of pre-determined factors that may, in circumstances specified in the Directive 2009/28/EC, be used to show greenhouse gas emissions potential.

Feedstocks- starting products used as the basis for manufacture of another product. In case of biomass, this definition typically covers agricultural commodities used to produce biofuel. Examples include rapeseed, corn, sugarcane, soybeans.

Renewable energy obligation – national support scheme requiring energy producers, distributors or consumers to include a given proportion of energy from renewable source in their production, supply, and consumption respectively.

Typical value – an estimate of the representative greenhouse gas emission saving for a particular biofuel production pathway (performed by Joint Research Center of the European Commission).

BLE- German Federal Agency for Agriculture and Nutrition.

BMELV- German Federal Ministry for Agriculture, Food and Consumer Protection.

EU – European Union.

GHG – green house gas.

FNR – German Federal Agency for Renewable Resources.

ISCC –International Sustainability and Carbon Certification System.

MS – Member State of the EU.

RED – The Renewable Energy Directive, Directive 2009/28/EC on the promotion of the use of energy from renewable sources and amending and subsequently repealing Directives 2001/77/EC and 2003/30/EC, enforced from of July 5, 2009.

UFOP – German Union for Promotion of Oilseeds and Protein Plants.

1. The EU policy toward renewable energy – demand for Ukrainian rapeseed

1.1 Developments of EU renewable energy targets

The Energy policy of the European Union is focusing on creating a competitive internal energy market, on developing renewable energy sources (sustainable energy), on reducing dependence on imported fuels (security of energy supply), and on doing more with a lower consumption of energy (increase in energy efficiency). Having these goals specified, the EU committed itself to specific targets that served as indicators of what has been achieved.

The aim of renewable energy promotion has been viewed as two-fold: first, renewable energy was considered as a part of strategy to cope with climate change challenge and thus satisfy established green house gas emissions reduction requirements¹, and secondly, to reduce dependency from energy imports. For both of these purposes, the EU has developed targets of shares for renewable energy in different energy subsectors and the support mechanisms to assure compliance with those targets both at EU and member state levels.

Development of first specific targets for shares of energy from renewable sources goes back to 1997; the requirements have become more stringent over time.

Table. 1.1

Renewable energy targets in EU, 1997-2009

Year to reach target	Target	Binding/indicative	Document	Year of adoption
2010	12% of renewable energy in total energy consumption	Indicative	White paper ²	1997
2010	21% of electricity from renewable sources in total electricity consumption	Indicative	2001/77/EC ³	2001
2005	2% of renewable fuel in transport	Indicative	2003/30/EC ⁴	2003
2010	5.75% of renewable fuel in transport			
2020	20% of renewable energy, 10% of renewable fuel in transport	Binding	2009/28/EC ⁵	2009

Source: Own presentation based on EU legislation

Specific targets for biofuels production have been defined several times since 2001. First targets were agreed in the Biofuels Directive of 2003⁶ and set common to all EU members given virtually equal consumption volumes of biofuels across EU at that time. The targets were set as “reference values” that allowed member states to develop their own targets and mechanisms to ensure “that minimum proportions of biofuels and other renewable fuels are placed on their markets”.

¹ Currently, EU is obliged to fulfill Kyoto Protocol commitments – 8% GHG emissions reduction by 2012 for EU-15 (with specific targets for different countries distributed in burden-sharing agreements in 2002). EU-27 has no single target, but specific targets are assigned to countries as signatories of Kyoto. Further, EU Energy and Climate Change Package adopted by the Council on April 6, 2009 established a target of 20% reduction of GHG by 2020. Amendments to Fuel Quality Directive 98/70/EC of 13 October 1998 set binding 6% reduction of GHG emission in the use of transport fuels

² Communication from the Commission - Energy for the future: Renewable sources of energy - White Paper for a Community strategy and action plan . COM(97) 599, November 1997.

³ Directive 2001/77/EC on the Promotion of the Electricity Produced from Renewable Energy Sources.

⁴ Directive 2003/30/EC on the Promotion of Use of Biofuels and Other Renewable Fuels for Transport.

⁵ Directive 2009/28/EC on the promotion of the use of energy from renewable sources and amending and subsequently repealing Directives 2001/77/EC and 2003/30/EC. Note that the targets have been agreed in earlier legal acts in 2007-2008, but mandatory targets for each member states as well as supportive mechanism has been endorsed by this directive.

⁶ Directive 2003/30/EC on the Promotion of Use of Biofuels and Other Renewable Fuels for Transport.

The compliance with the targets was ensured through various support schemes which varied across member states. Two main instruments, tax reliefs and biofuel obligations (or mix of the two) have been applied to promote the use of biofuels in the EU (so-called general support instruments)⁷.

Many specific support measures are introduced in certain countries as subsidies related to agriculture such as production of feedstocks and to industry where necessary operations to achieve the intermediate and finished product are performed. The consumption side implies measures related to distribution of biofuels, purchasing and maintenance of cars using biofuels, green public purchases, and campaigns to increase public awareness⁸.

EU level support mostly targets primary stage of the supply chain. Feedstock producers received support since the 2003 reform of the Common Agricultural Policy introduced an energy crop premium. It granted, on top of producer's decoupled payments, a payment of EUR 45 per hectare to growers of energy crops, including crops grown for the production of biodiesel and bioethanol for a maximum guaranteed area of 2 million hectares. Also, the revised CAP allowed farmers to grow energy crops on set-aside land if the use of the biomass is guaranteed either by a contract or by farmers⁹. In the framework of rural development policy investments in bioenergy on or near farms (e.g. in biofuels processing) are eligible for support¹⁰.

Producers of biofuels, distributors, private and public consumers are mostly supported at a national level.

The first and the second biofuels progress report of the European Commission¹¹ showed that the production of biofuels for transport has increased drastically but with only a few countries reporting a success in meeting their own targets (See Annex A). Together with a slowdown in 2008 and 2009, many estimates show (within a certain range) that EU would fail to achieve its 2010 target.

The lag between the target and actual shares suggested the EU authorities to establish a new figure. The Renewable Energy Directive of 2009 established 10% of renewable fuels in transport and 20% of renewable energy in total energy consumption in 2020 as binding (not indicative as before) commitments. 20% of renewable energy remains as EU-level target (still obligatory) with different individual targets for member states. The states that fail to meet their GHG savings targets faced relatively more stringent requirements as to increase their share of renewable energy (See Annex B). By contrast, 10% of renewable fuel is the common target for each member state. This target refers to all forms of transport and all types of renewable fuel (biofuel, green electricity, hydrogen). Second-generation biofuels and green electricity were set privileged¹²

1.2 Support of biofuels production and consumption in the EU: the case of Germany

Germany's biofuel promotion policy started with the emphasis on taxation as biofuels (pure and then blends) were fully exempt from the fuel tax¹³.

⁷ Tax privileges are any kind of exemption of general taxation applicable for conventional fuels (excise tax, ecological tax). Biofuel obligations are legal instruments requiring fuel suppliers to include a given percentage of biofuels in the total amount of fuel they sell on the market.

⁸ See Staff Working Document adopted together with The Renewable Energy Progress Report. Communication from the Commission, COM (2009) 192.

⁹ Health Check of CAP established that energy crops premiums and set-aside obligations shall be abolished from 2010.

¹⁰ Additionally, under the sugar market reform inefficient sugar producers are eligible to receive EU funds to convert sugar factories into ethanol plants that use either sugar beet or grain as inputs. Finally, there is distillation crisis aid paid to transform wine into alcohol to be used in the production of ethanol.

¹¹ Biofuels Progress Report. Communication from the Commission, COM (2006) 845. The Renewable Energy Progress Report. Communication from the Commission, COM (2009) 192.

¹² The consumption of bioelectricity in electric road vehicles shall be considered 2.5 times of energy content of the input of electricity from renewable energy sources (Article 3 (4), point c); the contribution made by biofuels produced from wastes, residues, non-food cellulosic material, and ligno-cellulosic material shall be considered to be twice that made by other biofuels (Article 21 (2)).

¹³ See Biodiesel initiatives in Germany. Final Report by PREMIA Heidelberg, May 2005.

In 2004, this exemption enhanced price competitiveness of biofuels and was put valid for all blends with conventional fuels in a way that the biogenous share was taxed with a zero rate¹⁴. As the fuel tax is comparatively high in Germany this led immediately to a significant stimulation of investments in biofuels. Increased investments led to decreasing tax income in the following years so that the government changed its policies in 2006.

In 2006 Germany introduced energy tax on biofuels (still lower than for conventional fuels) intending to equalize the tax for biofuels and conventional fuels till 2012. Both overall and fuel-specific (biodiesel and ethanol) mandates based on energy content were adopted claiming the intent to have 10% blend of ethanol standard adopted into gasoline in 2008¹⁵. The Bio Fuel Quota Law (Biokraftstoffquotengesetz, BioKraftQuG) enforced the quota from January 1, 2007.

In 2009 a new law passed the German Bundestag¹⁶ stipulating significant changes in the promotion principles from 2015. The use of biofuels will not be put dependent on the obligation to observe quotas but on the necessity to reduce green house gas emission. The following changes have been made:

- The total quota valid from 2009 onwards was reduced to 5.25% (instead of 6.25% agreed in 2006) and to 6.25% in 2010-2014 (instead of 6.75%-8.0% agreed in 2006);
- The quota for bioethanol in petrol will be reduced to 2.8% from 2010 (instead of 3.6%);
- The shares of biofuels will be replaced by climate protection quota to reduce GHG emissions from biofuels by 3% from 2015, 4.5% from 2017 and 7% from 2020;
- Biofuels have to satisfy climate change contribution (green house gas emissions savings compared to conventional fuels set in the EU Renewable Energy Directive).

These policy changes reflect three waves of biofuels support in Germany:

- | | |
|------------------------------------|---|
| 1 st wave: 2004-2006 | promotion of biofuels by tax exemptions under Chancellor Schroeder; |
| 2 nd wave: 2006-2009 | reduction of tax benefits and setting of blending quotas under Chancellor Merkel; |
| 3 rd wave: 2009-onwards | binding support policies to green house gas reductions. |

Currently, there is a broad consensus among policy makers in Germany and the EU that the specific contribution to green house gas savings should be the most important criteria for biofuels support policies.

¹⁴ For the different biofuels, the following facts are valid: biodiesel is assumed to be 100 % biogenous, other fuels or additives like biogenous ETBE or MTBE are classified depending on the biogenous share, e.g. ETBE is said to be 47 % biogenous, From this, for the example ETBE 53 % of the tax on petrol are due.

¹⁵ Introduction of blends requires adoption of corresponding fuel quality standards. See The Bio Fuel Quota Law.

¹⁶ Gesetz zur Änderung der Förderung von Biokraftstoffen (BioKraftFÄndG). The Law Amending the Biofuels Promotion Act, enforced from July 2009.

1.3 Dynamics of export of rapeseed to the EU from Ukraine

The EU biofuels obligations and support programs created opportunities for suppliers of feedstock as production and consumption of bioenergy increased. The EU grew into one of the largest importer of feedstocks for the biofuels industry¹⁷.

Since biodiesel accounts for around 75% of EU biofuels markets, vegetable oils are used as primary feedstock for production. Rapeseed oil (and thus rapeseed) dominates among possible feedstock oils due to EU biodiesel standards. Figure 1.1 shows that the EU is a large importer of vegetable oils and that only 50% of the vegetable oil consumed in the EU is obtained from the fields of the EU.

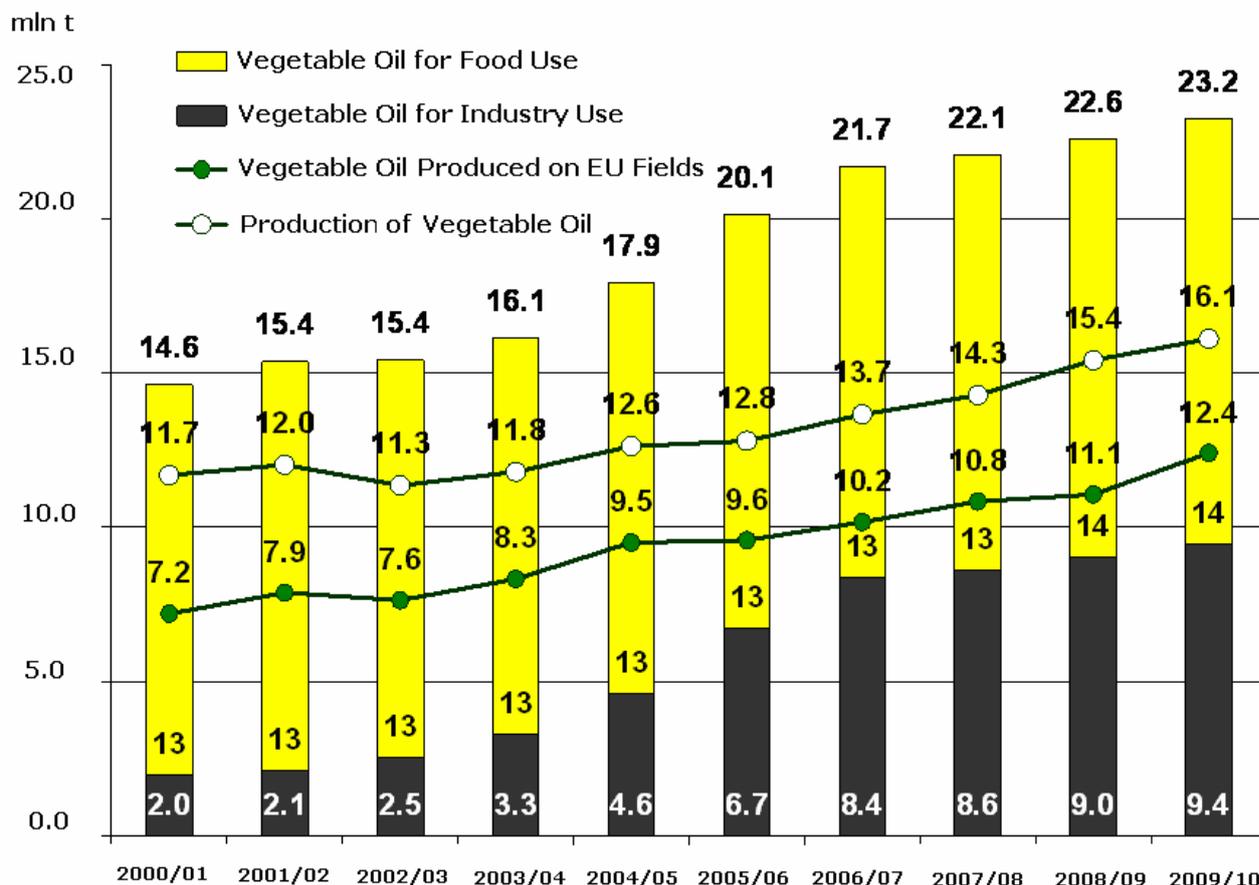


Figure 1.1
Vegetable oil balance in the EU-25, 2000-2010
Source: Toepfer

Development of biofuel targets and government support programs contributed to higher demand for feedstocks in the EU. The ratio between food and industrial use of vegetable oil changed mainly reflecting increased biofuel production (See Figure 1.1)

Due to increasing demand, Ukrainian producers increased production volumes of rapeseed that matched the timing of EU biofuels initiatives. Figure 1.2 proves gradual significant increase in the production and export volumes of rapeseeds.

¹⁷ According to EC estimates around 30% of feedstock needed to reach 2020 targets for biofuel in transport will be imported.

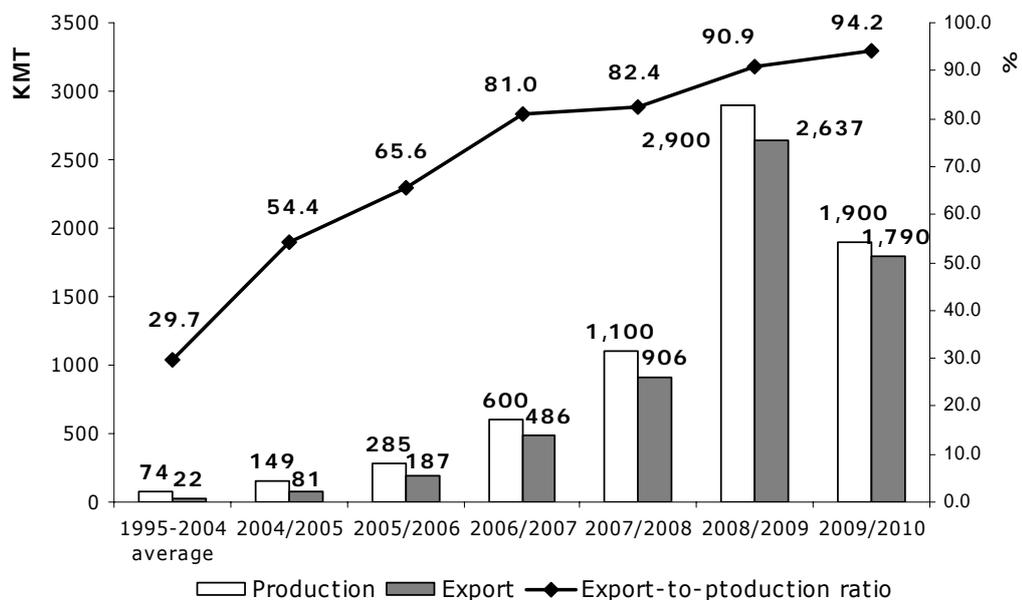


Figure 1.2
Production and export of rapeseed in Ukraine, 1995-2010
 Note: 2009/2010 - forecast
 Source: USDA

Prior to 2004/2005 the production and exports of rapeseed were low and then expanded more than twenty times by 2008/2009 season.

Domestic consumption remained negligible due to limited domestic demand. The share of export increased to more than 90% last season. Figure 1.3 shows the importance of EU markets as a destination of Ukrainian rapeseed.

Except for 2007/2008 season, when nearly half of the export went to Asian and Middle and Near East countries for food use, the EU accommodated more than two-thirds of Ukrainian export of rapeseed.

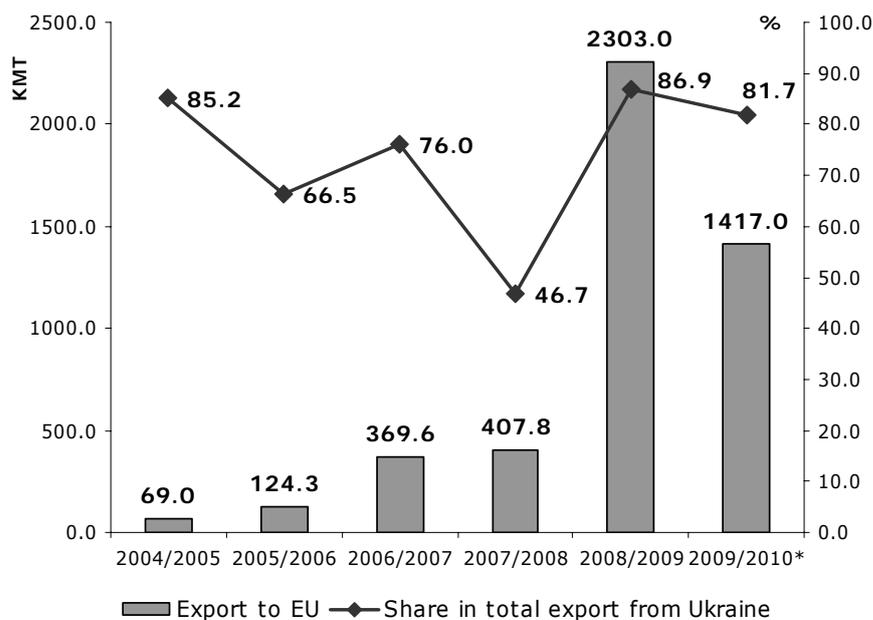


Figure 1.3
Export of rapeseed from Ukraine to EU, 2004-2010
 Note: * Jun-March
 Source: UkrAgroConsult

According to Ukrainian Agribusiness Club estimates, export of rapeseed to the EU amounted to 1.35 billion USD in 2008/2009 which approximates to 4.85% of all export revenues gained from trade within 1-14 HS codes (all products of animal and plant origin)¹⁸. The geographical scope is large, but as many as four countries accommodate more than 65% of the exports (See figure 1.4)

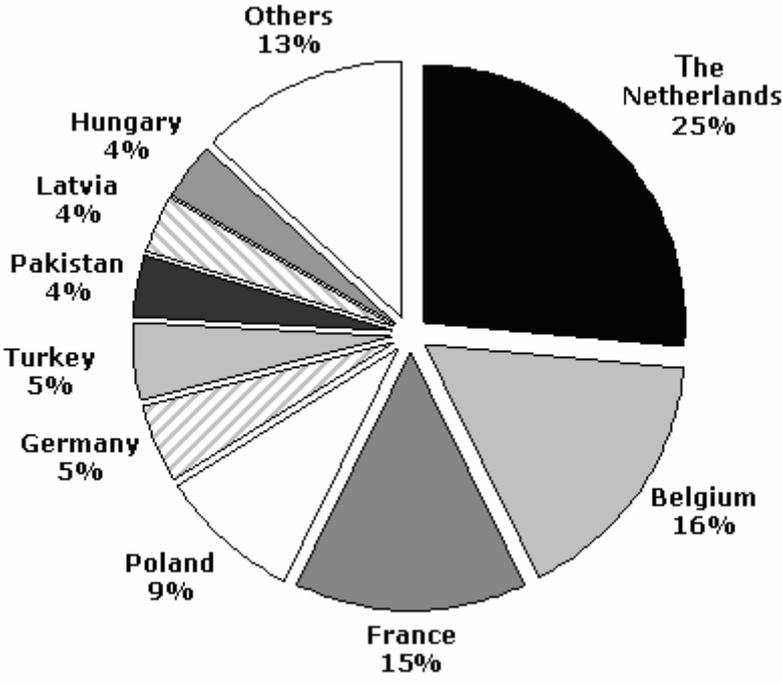


Figure 1.4
Export of rapeseeds from Ukraine by destinations, 2008/09
 Source: UkrAgroconsult

The benefits from international trade with rapeseeds translated into support for farmers through higher farm-gate prices. According to the State Statistics Committee, agri companies have expanded the areas under rapeseed dramatically and in the 2008/2009 crop year rapeseed constituted around 4% of the total arable land. Farmers reported that rapeseed production in 2008 and in 2009 was one of the most profitable enterprises in crop production.

The income from rapeseed production and sales has been realized partially due to the EU trade policy that kept zero import rates for third countries¹⁹. The introduction of new sustainability criteria for biofuels and new requirements for feedstocks imported from third countries to the EU as well as development of certification schemes should therefore be appropriately considered by farmers, traders, and the Ukrainian government.

¹⁸ Total export revenue referred is 27.82 billion USD, State Statistics Committee of Ukraine
¹⁹ According to Customs Union database, import of rape seeds (1205 HS code) is imposed to zero rate taxation.

2. EU directive on sustainable biofuels – new certification required

2.1 Definition of sustainability criteria for biofuels

Higher social costs of biofuels production in the EU have been justified with their advantages compared to conventional fuels, primarily in terms of environmental friendliness. Though hardly measurable, certain methodologies and indicators have been proposed to properly compare biofuels to their fossil fuel substitutes and to rank different types of biofuels to advocate their eligibility for state support programs.

The set of these indicators and their values emerged into so-called “sustainability criteria” – specially designed measurements allowing to secure acceptable levels of environmental, social and other characteristics in the process of biofuels production and distribution.

The Renewable Energy Directive establishing sustainability criteria for biofuels came into force on June 25, 2009 specifying the transposition period for member states to implement it into the national law till December 5, 2010.

The Directive specified sustainability criteria for (a) biofuels for transport and (b) bioliquids for other sectors (electricity, heating and cooling)²⁰, but also envisaged that the Commission should report on requirements for a sustainability scheme for biomass other than biofuels and bioliquids. Consequently, there will be several stages of development and implementation of sustainability requirements and certification schemes that would cover all types of biomass.

Article 17 of RED lays down that irrespective of whether feedstocks were cultivated inside or outside the EU, energy from biofuels and bioliquids shall be counted towards renewable energy targets and receive financial support for the consumption of biofuels only if they fulfill sustainability requirements.

This formulation does not prohibit the production of unsustainable biofuels as such, but rather excludes unsustainable biofuels from state support programs and, in turn, from expected market price premiums. To receive the benefits, producers of feedstocks and biofuels shall provide enough evidence of compliance with the relevant sustainability requirements.

Sustainability requirements defined in the Directive concern all the issues critically attributed to biofuels: greenhouse gas emissions, land use changes, biodiversity preservation, social impacts of biofuels production such as adverse impact on food prices and employment (See table 2.1).

Certain requirements are put very specific with exact reference values and implementation mechanisms (as to green house gas emissions savings); others are left as general prescriptions to be supplemented with further regulations and guidance (as to social impact of biofuels as well as soil, air and water pollution issues).

²⁰ See Glossary and abbreviations in this paper for exact definitions as referred in the Directive.

Table 2.1

Specific sustainability requirements set by Renewable Energy Directive

Sustainability criterion	Description	Implementation remarks
1. Green house gas emissions savings (Article 17 (2) of RED)	<ul style="list-style-type: none"> at least 35% for installations established after 23 January 2008, at least 50% from 2017, at least 60% from 2018 for installations put in operation from 2017. 	<p>The detailed methodology for calculation of GHG savings is given in the Annex V of the Directive.</p> <p>In case of biofuels produced by installations that were in operation on January 23, 2008, 35% GHG savings applies from April 1, 2013.</p>
2. Land use restrictions (Article 17 (3) - 17 (5) of RED)	<p>Raw material for biofuels cannot be produced from the land with the defined status:</p> <ul style="list-style-type: none"> high biodiversity land (forest and wooded land, land designated for nature protection purposes, highly biodiverse grassland), high carbon stocks land (wetland, forest land with defined coverage of canopy), peatland. 	In many cases additional evidence about the preservation of certain land characteristics may help farmers to overcome the prohibition of use of land with the defined status.
3. Good agricultural practice (cross compliance) requirements (Article 17 (6) of RED)	Cross compliance rules defined for farmers to be eligible for state support schemes under common agricultural policy hold for biofuel raw materials cultivation	The cross compliance requirements are relevant only for feedstock producers inside the EU.
4. Social sustainability of biofuels (Article 17 (7) of RED)	Biofuels policy should not adversely affect availability of foodstuff, should respect land-use rights and other wider development issues in the EU and in third countries	Development issues cover labour norms referring to obligation to adopt and enforce the Conventions of International Labour Organization specified in the Directive.

Source: Directive 2009/28/EC of 23 April 2009 "On the promotion of the use of energy from renewable sources and amending and subsequently repealing Directives 2001/77/EC and 2003/30/EC"

Green house gas emission savings requirements are the reduction of emission from use of biofuels as compared to the use of conventional fuel. The methodology for calculation of green house gas impact of biofuels is laid down in Article 19 of the RED. (See Annex C for the general description of this methodology). The reduction is shown in percentage.

Several options have been established for green house gas calculations:

- to use actual values of green house emissions saving (that is, specifically calculated by the methodology provided in the Directive);
- to use default (predefined by the Commission) values²¹ of green house emissions saving. Default values are those calculated by the Commission for typical production pathways and are allowed to be used with no additional support documents;

²¹ Default values are calculated by Joint Research Center of European Commission and International Climate Panel using representative firms.

- to use mixed approaches, that is to use disaggregated default values for some production factors or stages of production (e.g. cultivation of raw materials, processing, transportation, distribution) and actual values for other production factors or stages of production.

In general, default values and disaggregated default values reflect the relative advantages of biofuels in terms of GHG emissions but do not cover indirect land-use effects. Nonetheless, considering direct effects only, these values together with GHG savings requirements provide clear signs whether specific biofuels will be considered sustainable in the future. Figure 2.1 depicts default values for selected production pathways and GHG savings requirements.

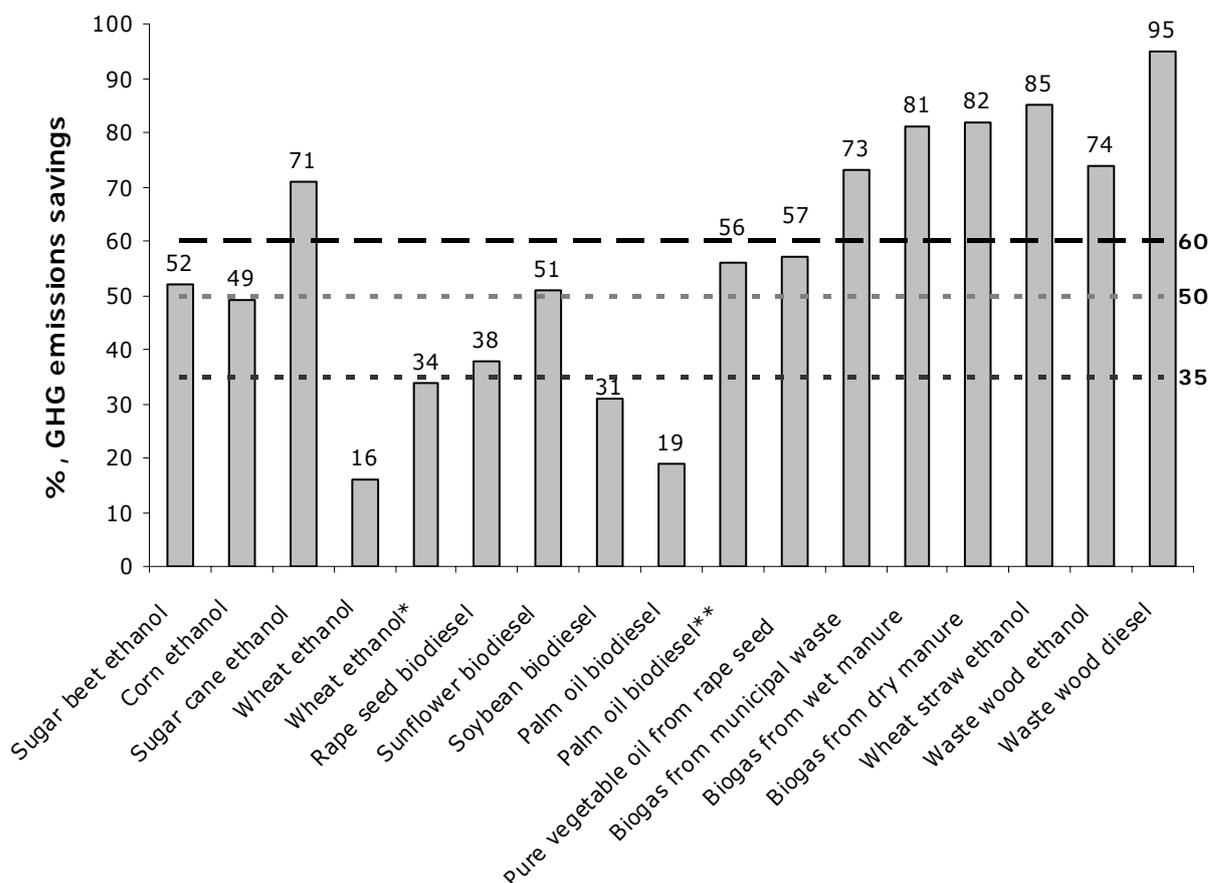


Figure 2.1

Selected default values of green house gas emissions savings

Note *natural gas as a process fuel in conventional boiler, **process with methane capture at oil mill
Source: Annex V, Renewable Energy Directive

Figure 2.1 illustrates the most endangered types of biofuels in terms of their compatibility with green house gas emission saving requirements. Clearly, first generation of biofuels fails to meet the requirements in most cases and the risk of such failure increase with the obligation uphold from 35% to 50% and further to 60%. The default values vary not only across feedstocks but also across the production technologies (wheat ethanol and palm oil diesel meet the 35% target in case of specific technology applied). This suggests shifting the attention to alternative technologies and second generation of biofuels (see values for straw and wood ethanol), especially after 2017.

In case of liquid biofuels, it has been shown that the largest part of GHG is emitted on biomass production stage. This suggests possible technology changes in farming, in particular shift to no-tillage or other land-use practices that proved great potential in terms of carbon sequestration and thus would allow farmers to meet future GHG requirements²².

²² For example, calculations by P. Smith, D. Powelson, M. Glendining, J. Smith suggest that 100% conversion to no-till agriculture in Europe could mitigate all fossil fuel-carbon emissions from agriculture in Europe. See Preliminary

A supplier using GHG saving technologies in farming could calculate actual values to provide evidence that his specific biofuel would have higher GHG emission savings. Moreover, default values are only valid for production pathways that do not cause carbon emissions from land-use change. In presence of such emissions, actual values should be provided.

The Directive recognizes the necessity to reconsider default values as new technologies emerge or new reliable statistics are available. This holds both for default values for the whole value-chain as well as disaggregated values for feedstock cultivation.

By March 31, 2010 the Commission will write a report evaluating the possibility of definition of areas in third countries where typical green house gas emissions savings are lower or equal than the default values defined. Furthermore, the Commission is to review the impact of indirect land-use change²³ and make a proposal till the end of 2010 about the methodology to calculate this effect.

Further provisions concern ***sustainability criteria for feedstocks:***

According to Article 17(3)-17(5) to fulfill sustainability requirements biofuels shall not be made from land with high biodiversity value, land with high carbon stock, and peatlands, namely the land that has or had one of the following status:

- 1) primary forest and other wooded land, namely forest and other wooded land of native species, where there is no clearly visible indication of human activity and the ecological processes are not significantly disturbed;
- 2) area designated by law for nature protection purposes or for the protection of ecosystems and species recognized by international agreements unless the evidence is provided that the production of raw materials did not interfere with those nature protection purposes;
- 3) highly biodiverse grass land (natural or non-natural);
- 4) wetlands, namely the land that is covered with or saturated by water permanently or for a significant part of the year;
- 5) continuously forested areas, namely land spanning more than one hectare with trees higher than five meters and canopy cover more than 30% or trees able to reach those thresholds in situ;
- 6) land spanning more than one hectare with trees higher than five meters and a canopy cover of between 10% and 30%, or trees able to reach those thresholds in situ, unless evidence is provided that carbon stock before and after conversion is such that green house gas emission savings requirements are fulfilled;
- 7) peatland as of January 2008, unless evidence is provided that the cultivation and harvesting of raw materials does not involve drainage of previously undrained soil.

Land use restrictions rely on the status of the land it had in or after January 2008. However, the status of certain areas, namely the criteria and geographic ranges for grassland, are pending definition with further regulation needs by the Commission. The three groups of land restricted to use for feedstock cultivation are often accompanied with "unless evidence is provided..." that leaves certain degrees of flexibility for producers.

Additional provisions are expected as to definitions of severely degraded and highly contaminated land²⁴.

Good agricultural practice requirements refer to Council Regulation 73/2009 of January 19, 2009 establishing common rules for direct support schemes for farmers under common agricultural policy (cross-compliance rules). The list of obligations is quite extensive and further refers to additional regulations that define environmental friendly land management, preservation of habitats, biodiversity, water use and mitigating climate change. There are no specific provisions in the Directive on Good Agricultural Practice requirements outside the EU. However, future reports of the Commission may contain proposals to address these issues specifically (namely, measures for soil, water and air protection as stated in Article 17 (7), Article 18 (9)).

Estimates of the Potential for Carbon Mitigation in European Soils Through No-Till Farming. *Global Change Biology* 4:679-685 (1998)

²³ The change of carbon stock caused by food crops shifted to new cultivation areas being substituted by biofuel feedstock crops production.

²⁴ GHG savings bonus amounts may be assigned to those lands provided raw materials are cultivated there.

Social sustainability of biofuels concerns the issues of competition with food crops, possible adverse effects on labour conditions, land rights, biosafety, and other broader development aspects. For that purpose, the countries supplying feedstocks or biofuels to the EU must ratify and implement a set of Conventions of the International Labour Organization as well as the Cartagena Protocol on Biosafety and the Convention on International Trade in Endangered Species of Wild Fauna and Flora.

As regards sustainability criteria for other types of biomass, no EU-level binding regulations have been justified so far. Instead, the Commission in its report²⁵ proposes certain schemes to be implemented at national levels. In the absence of harmonized rules at the EU level, member states are free to put in place their own national schemes for solid and gaseous biomass used in electricity, heating and cooling guided by the sustainability criteria similar to those established for biofuels.

In this way, EU authorities hope to minimize the risk of the development of varied and possibly incompatible criteria at national level, leading to barriers to trade and limiting the growth of the bio-energy sector.

2.2 Verification of compliance with sustainability criteria

Article 18 of the Directive obliges member states to implement measures to ensure that economic agents provide reliable information on the compliance with sustainability criteria for biofuels. This implies that the development and implementation of certification schemes falls under responsibility of member states. However, the Commission is to define the list of appropriate and sufficient information for this purpose avoiding "excessive administrative burden for operators", including small farmers, producer organizations and cooperatives.

Three options are available to show compliance with sustainability criteria:

- a) EU-level recognition of voluntary schemes that address one or more of the sustainability requirements;
- b) bilateral and multilateral agreements with third countries; and
- c) by member states national verification methods.

The Commission may decide that voluntary national or international standards for the production of biomass contain sufficient information to verify the compliance with sustainability criteria. Such a decision may be made only if the scheme in question meets reliability, transparency and independent auditing standards. In such cases all member states will have to accept those standards as proof of compliance with those requirements. Individual member states are permitted to benchmark and approve standards that cover one or more of the RED mandatory sustainability requirements. In such cases other Member States do not necessarily have to accept those standards. The decision by the Member State could also be overruled by an EC decision on the same standard.

Different biomass production standards have been known in member states prior to the adoption of the Directive. The Netherlands, UK, and Germany have taken active steps to develop such schemes. National governments endeavor to estimate the compatibility of the schemes in operation or in development with the criteria defined in the Directive and to make the adjustments or introduce a completely new schemes if needed²⁶.

The general principle of certification is based on *mass balance system*. The mass balance method of verification is based on the assumption that the mass of the input matter equals to the output matter (matter could not be created or destroyed) so the sustainability characteristics are assigned to the physical mass of biofuel (biomass). Once granted compliance for a certain physical mass, an operator could claim the compliance for this mass when it passes the biomass (even when it comes from another consignment) to the next

²⁵ Report from the commission on sustainability requirements for the use of solid and gaseous biomass sources in electricity, heating and cooling. COM(2010) 11

²⁶ In many cases such standards do not cover green house gas emissions saving or another RED criterion. See, for example, review of existing standards in Development of Feedstock Sustainability Standards. Renewable Fuel Agency Report, November 2009.

operators. This allows for mixture of consignments with different sustainability characteristics. A trader, for example, would have to prove to the registry in European port that the consignment originates to 70 per cent from certified farms and 30 per cent from other resources. A European refinery could then purchase 70% (in mass) of the consignment and book its share as sustainably produced.

However, given the complexity of "mixture" and "consignment" definitions (as to appropriate scale) and high intensity of mixing at each stage in the value chain (risk of excessive burden), the Commission intends to develop other verification methods "in which information about sustainability characteristics need not to remain physically assigned to particular consignments or mixture" (Article 18 (2))²⁷

Article 18 (4) allows for bilateral and multilateral agreements with third countries that would contain provisions on sustainability criteria. These agreements may serve as evidence of compliance with sustainability criteria defined in the Directive. In this case the EU is ensured by a third country that it takes all necessary measures for soil, water and air protection, indirect land use changes, restoration of degraded land, avoidance of excessive water consumption (the requirements that are not specifically described in sustainability criteria definition). The recognition of the schemes and the agreements requires a separate decision of the Community, which is valid for five years.

The data on states of affairs with sustainability criteria compliance and broader questions regarding soil, water, air pollution should be made public on the transparency platform²⁸, specially designed source for the latest developments in the implementation of the provision of the Directive.

As noted above, member states shall implement the Directive into national law and *inter-alia* introduce certification schemes till December 5, 2010. The majority of the member states seem to fully exhaust this period. However, certain countries already announced their intention to introduce certification regulations earlier. Moreover, national action plans covering the information about the policies towards sustainability criteria and verification of compliance are to be submitted by the end of June 2010. This suggests short-run implications both for producers of biofuels and feedstocks suppliers.

2.3 Introduction of first certification schemes: the case of Germany

Germany has pioneered the introduction of sustainability criteria for biofuels. In its Biomass Sustainability Regulation drafted back in 2007²⁹, the country already defined a set of sustainability criteria which were not enforced due to superiority of EU level legislation on the issues that were not yet agreed at that time. The Regulation envisaged certain minimum requirements concerning sustainable cultivation of agricultural areas as well as natural habitat protection. Biofuels were supposed to possess a determined "green house gas reduction potential" in future (30% and 40% from 2011) that had to be proved via new certification³⁰.

After the RED had been enforced from July 5, 2009, Germany was again the first to start the development of its own mechanism of the implementation of sustainability-related provisions. In 2009, two Regulations on biofuels for electricity³¹ and sustainable biofuels for transport³² translated the Directive into national German law. The documents set common sustainability criteria in accordance with the EU directive and required certification of biomass both from domestic and foreign producers as the way of verification of compliance.

²⁷ See European Biodiesel Board Position: Practical Implications Of The Mass Balance System For The Biodiesel Industry for a discussion of appropriate interpretations of mass balance system. February 26, 2010

²⁸ Available at http://ec.europa.eu/energy/renewables/transparency_platform/transparency_platform_en.htm

²⁹ The document referred as BioNachV was drafted on December 5, 2007.

³⁰ For more detailed discussion of the provisions of the Regulation in 2007 see Commentary Paper for the Draft on the German Biomass Regulation from December 5, 2007 by Union for the Promotion of Oilseeds and Protein Plants, 2008.

³¹ Bioelectricity Sustainability Regulation (BiomassestromNachhaltigkeitsverordnung – BioSt-NachV) from July 23, 2009. Available at Bundesgesetzblatt www.bgbl.de online (Official Journal). Enforced from August 24, 2009

³² Biofuels Sustainability Regulation (BioKraftstoff-Nachhaltigkeitsverordnung - BiokraftNachV) as of 30 September, 2009. Available at Bundesgesetzblatt online www.bgbl.de (Official Journal). Enforced from 2 November, 2009

In addition to GHG reduction and good agricultural practice requirements (see table 2.1), the new legislation implies that there would be no use of biomass grown in areas deemed of high-level nature conservation. This includes:

- regions which are already conservation areas or are protected under the terms of international agreements;
- grasslands encompassing significant biological diversity;
- carbon-rich areas, e.g., moors, wetlands or permanently wooded areas;
- areas deemed turf moors on January 1, 2008 as the reference date.

The new regulations stipulate that biomass could be used for energy purposes without verification until December 30, 2010 (the deadline shifted in April 2010)³³. From January 1, 2011 biofuels suppliers would have to either prove the origin from the 2010 harvest or pass through sustainability certification. Certification is set to cover each stage of the supply chain separately applying the mass balance method and can be performed via various certification systems that are currently developed³⁴.

Feedstocks and biofuels importers will have the opportunity to receive a sustainability certificate from the International Sustainability and Carbon Certification (ISCC) system³⁵, being approved as the first certification system for sustainable biomass and bioenergies describing the rules and procedures for certification.

ISCC works as follows: certificates are issued at each interface between steps in the biomass supply chain, such as traders or cooperatives, oil mills and refineries which process liquid or gaseous biomass to end use quality. The certificates are supervised through approved certification bodies. At the last interface, i.e. the last processing step, a proof of sustainability is issued for the transport or liquid biofuel. This document is then used to claim the public subsidies. Certificates are issued by a certification body which must be governmentally approved (as must the certificate itself). Certificates are valid for 12 months. The typical certification process is described in the Annex D.

The pilot phase of ISCC ended in January 2010, and ISCC received a preliminary approval from the German Federal Agency for Agriculture and Nutrition (BLE). After the certification bodies have also been approved, the first regular certification can begin. Audit experience has already been gathered through pilot projects in the EU, Argentina, Brazil and Malaysia. These tested procedures now have to be transformed into a workable system on a global scale. As an example, this means to transfer electronic registers of certificates, certification bodies and members of the ISCC certification system into a database which can be accessed worldwide.

Germany outpaced EU authorities in issuance of the guidelines for sustainable biomass production. The document³⁶ published by the German Federal Agency for Agriculture and Nutrition (BLE) in particular envisaged the form of the self-declaration from agricultural producers (separate statements for EU and third countries farmers) that would verify the sustainable production of biomass. Annex E provides unofficial translation of the required forms. The main rationale behind the declaration design was to simplify the process of verification by letting farmers declare the sustainability by themselves (though staying ready for any auditions against the fraud). Currently, 3% (inside the EU) and 5% (outside the EU) of the producers are expected to be controlled by independent auditors. As other EU member states develop their own certification schemes³⁷ a consensus would be needed to agree on the compatibility of documentation all around EU. This implies that uncertified suppliers of biofuels (as well as feedstock) will soon lose the opportunity to sell on EU markets. This calls for timely response from third countries willing to supply their products to the EU.

³³ See press-release by Bundestag Coalition at http://www.peter-bleser.de/front_content.php?idcat=100&idcatart=991

³⁴ The Biofuel Sustainability Regulation set the requirements for these systems and empowered Federal Agency for Agriculture and Nutrition (BLE), subordinate to – Federal Ministry of Food, Agriculture and Consumer Protection (BMELV) to approve such systems and certification bodies.

³⁵ For details on how the system operates see <http://www.iscc-system.org>. Other similar systems (RED-Cert) are under development for German and EU energy crop producers.

³⁶ Leitfaden Nachhaltige Biomasseherstellung. Available at www.ble.de under "Kontrolle und Zulassung".

³⁷ As of March 2010, no member state except for Germany has adopted legal acts that implement binding sustainability criteria and certification schemes. However, many systems are under development. See Annex F for details.

3. Implications of new requirements for Ukrainian producers

3.1 Necessary government action

Given new requirements imposed, Ukraine as country of significant source of feedstock for biofuels is to recognize the need of verification of compliance with sustainability criteria and to take full account of verification mechanisms envisaged in the Directive.

The most urgent task for the government appears as member states develop their certification schemes. It would be necessary to appropriately monitor the specific requirements imposed and to facilitate their implementation in practice. For this purpose, the government may *initiate a working group* comprising industry stakeholders. Establishment of such group would ensure that the information from trading partners is timely collected and disseminated directly to the parties affected by relevant regulations. Members of the group would be business associations, traders, farmers, experts, and officials that would benefit from developing a single position in the interactions with trading partners. In addition to norms regulating agricultural practices, the government of Ukraine and the European Commission would also have to agree on the recognition of certification bodies and on other aspects of the certification process to minimize the costs and to ensure maximum resistance against fraud (See section 3.4).

Both the EU and Ukraine should be interested in lowering the possible administrative burden to avoid halts in trade flows and thus may consider *signing a bilateral agreement* to prove the compliance according to Article 18 (4). Such an agreement would not exclude economic operators from submitting appropriate data of the certification procedure. However, it would help the EU to recognize existing and developed norms of good agricultural practice regulating production of biomass applicable in Ukraine and controlled by governmental bodies (Ministry of Agriculture, State Committee of Land Resources) that would lower the burden for farmers and traders. This implies that the control process of sustainable production of rapeseed from certification bodies would be addressed to the officials responsible for land resources data storage based on the statement of individual farms.

Criteria relevant for biomass production that are established in the Directive and that would appear in the national laws of Member states (though with possible minor modifications) in 2010 refer to many land status definitions (arable land, grassland, areas under protection, wetlands, wooded land) to restrict land use due to different environmental concerns and ensure good agricultural practice in biomass cultivation. Additionally, the Article 18 (4) shows that the EU would most likely include in any bilateral agreement a wider range of environmental issues as well as water, soil, air pollution, and land protection concerns (that may be stated as binding requirements in the future as the Article 18 (9) of the Directive informs). In this sense, the cross-check of Ukrainian legal acts and European norms is likely to be the primary issue during such bilateral negotiations.

Currently, the basic framework that regulates the issues of good agricultural practice in Ukraine is quite extensive. The most important laws are the Land Code of Ukraine of October 25, 2001, the Law of Ukraine #962-IV "On land protection" of June 19, 2003 and the Law #1264-XII "On the environment protection" of June 25, 1991, the Law of Ukraine #86/95 "On pesticides and agrochemicals" of March 2, 1995. The law on Land Cadastre that is to assign certain land statuses to each specific land plot is still under development. If compared to RED provisions, Ukrainian law contains only minor discrepancies in land status definitions. Norms that govern agricultural practice are restrictive enough to conform to stringent EU requirements.

Moreover, Ukraine has ratified each of the International Labour Conventions specified in the Directive and joined the Cartagena Protocol on Biosafety and the Convention on International Trade in Endangered Species of Wild Fauna and Flora. This suggests no need for significant legislative efforts to prove the compliance in the area of social sustainability.

Once signed, the bilateral agreement would facilitate trade flows through less administrative burden at least for five years, that is, the period for which the relevant decision of the Commission about recognition the agreement as a verification method is valid. It would clearly

define the sources of control, harmonize definitions, clarify responsibilities and facilitate a permanent dialogue with the European Commission on relevant further developments.

3.2 The role of the traders

Traders are economic operators that directly interact with importing partners. This implies that any new requirements as to products certification would be primarily imposed on them. In turn, they would pass the obligations to local suppliers. In this chain, traders are responsible for tracking the reliable data and earning buyer's trust. Irrespective of particular certification scheme applied, traders are to acquire the latest possible information about the particular requirements effective in different EU countries and to disseminate it among the suppliers of their products.

Some member states have already started to monitor the country of origin of feedstock for their biofuels trying to capture carbon and sustainability requirements. As sustainability concerns tighten across EU member states, the importers are likely to have a more careful look at the origin of the products they purchase and to ask for more information to be provided by traders.

More than 130 companies documented export of rapeseeds from Ukraine in the last two seasons (and around 10 companies with more than 1 per cent shares in total export). This suggests high level of competition and thus ensures incentives for the companies themselves to provide all the necessary information requested from member states.

For this purpose, the companies would need to build a reliable system of information storage and traceability of data received from the farmers to serve appropriately as a point in the chain of custody. The establishment of such system also entails companies' readiness to accept independent audit practices or develop their own schemes to be recognized by importers. The work incurs costs that may reflect in changes in farm-gate prices.

Although the current approach in EU member states allows biofuel suppliers to have certain amount of products unverified (as a fraction in mass balances), inability to accept independent auditing or to build a reliable data storage system may endanger trade flows stability. Uncertified quantities of feedstocks will possibly receive lower prices that may again translate into lower prices for farmers. Competition with verified rapeseed suppliers from other countries (CIS) will most likely increase.

This suggests that traders should play a key role in putting the new requirements into practice. Even if certification effectively starts in Germany from July 1, 2010, the traders always have two main options to diversify exports (and thus guarantee certain level of farm-gate prices). Sustainability criteria cover only feedstocks for biofuels in the EU. It means that companies may sell non-certified rapeseed for food use to the EU and to third countries outside the EU not yet involved in sustainability certification.

3.3 What rapeseed producers have to know

Short-run perspective

Exclusion of uncertified biofuels from financial support programs implies that uncertified consignments would face lower demand in the EU. To export rapeseeds, Ukrainian suppliers would have to pass through a certification process that would ensure broad export opportunities.

Certification is scheduled to start from January 1, 2011 in Germany. Other EU member states shall adopt their certification schemes till the end of 2010. This implies that the rapeseed that goes to Germany and also to Netherlands and Belgium where is it processed into oil to be further delivered to Germany biodiesel plants would be primary affected. From 2011 onwards rapeseed supplied to the entire EU market would be subject to sustainability requirements.

The magnitude of increase of costs due to certification would depend on the level of administrative burden caused by particular features of the new certification systems

developed. A bilateral agreement of the Ukrainian Government with the European Commission EU may reduce the transaction costs for individual farms.

Pilot certification schemes adopted in Germany will likely serve as a benchmark and suggest a self-declaration approach to verify compliance with sustainability criteria. This implies that individual farmers would need to fill in the required form stating basic characteristics of his biomass production (See Annex E). The self-declaration serves as enough evidence in Germany (due to cross compliance rules). However, whether the declaration would also serve as enough evidence for companies outside the EU is left under risk management considerations of particular certification systems³⁸.

Point 1 of the German form for producers outside the EU contains information on whether biomass has been grown on arable land. The aim is to show that this land was considered arable before January 1, 2008 and was not converted from land with any other status (woodland or area under conservation). Common practices applied by farmers in Ukraine prove that rapeseed is grown on arable land. Thus, evidence on the first point could be understood as in Article 51 of the Ukrainian Law "On land protection".

Point 2 refers to areas under protection. This definition corresponds to that stated in Article 61 of the Ukrainian Law "On environmental protection" and again should not bring any special concerns.

Point 3 asks for land parcels location and specific documents to verify this. In this case, the guidelines suggest application of polygonometric method (or similar method) of land parcels identification. Currently, Ukrainian rapeseed producers keep relevant schemes of their land plots with geographic identification approved by the Department of Land Resources of local administrations. However, extended maps may be required.

Point 4 suggests using default values for GHG savings calculations. As long as rapeseed-based biodiesel meet minimum requirements of 35% (current default value is 38%), no efforts are needed to show any additional calculations³⁹.

In the self-declaration of the producer, he has to explicitly recognize that auditors may control the validity of the provided information. Currently, the German authorities expect a control level by independent auditors of 3% of the production inside the EU and 5% outside the EU.

Medium and long-run perspective

The EU aims to increase its share of renewable energy and renewable fuels in particular. However, biofuels from rapeseed and soybeans are defined as those severely lacking greenhouse potential (See Figure 2.1). Special treatment of biofuels from waste, residues, non-food cellulosic material, and ligno-cellulosic material (their contribution towards national renewable energy targets is considered twice that made by other types of biofuels)⁴⁰ as well as 2.5 times of energy content counted from electricity consumed in road vehicles outlines the future shift towards more sustainable types of biofuels.

This shift would result in lower demand for first generation of biofuels and the relevant feedstocks. To get higher prices from selling sustainably grown biomass in the medium and long run perspective (beyond 2017 the rapeseed based biodiesel fails to meet GHG saving requirements if measured with current default values) Ukrainian farmers should consider application of more carbon-friendly technologies such as zero-tillage (some rapeseed producing farms already have the experience of application this method). These technologies do not necessarily imply additional costs.

³⁸ See paragraph 2 (a) of Chapter IV of BLE Guidelines Leitfaden Nachhaltige Biomasseherstellung

³⁹ However, there is a need to monitor possible adjustment of the default values as described in section 2.1

⁴⁰ Article 21 and Article 3(4) of the Directive

3.4 Certification process and certification bodies

The main challenges for the biofuels industry from establishment of sustainability requirements would originate from the design of the certification process.

A Directive (as opposed to a Regulation) issued by the European Commission has to be implemented by national law in each member state. In case of new requirements imposed by RED, sustainability criteria and certification systems will have to reflect these changes in the national law of 27 EU members. A typical certification process (as proven by German certification schemes) involves several certification systems (administered by different organizations) each of which comprises several certification bodies (to be accredited by a governmental institution). Given the intent to certify the product at each step in the value chain (so-called interface) every production season, the certification process would involve a large number of interactions between different institutions and economic operators. According to BLE, eight certification bodies have been approved in Germany by April 2010 (See table 3.1).

Table 3.1

Approved certification systems and certification bodies in accordance with Biofuels Sustainability Regulation (BioKraft-NachV) and Bioelectricity Sustainability Regulation (BioSt-NachV) in Germany

Certification systems

Registration number	Name of certification system	Date of approval	Approved according to	Approved until
DE-B-BLE-BM-10	ISCC System GmbH	18.01.2010	Biokraft-NachV	17.01.2011

Certification bodies

Registration number	Name of certification body	Date of approval	Approved according to	Approved until
DE-B-BLE-BM-ZSt-100	SGS Germany GmbH	24.02.2010	Biokraft-NachV	23.02.2011
DE-B-BLE-BM-ZSt-101	DQS GmbH	24.02.2010	BioSt-NachV	23.02.2011
DE-B-BLE-BM-ZSt-102	TUV SUD Industrie Service GmbH	24.02.2010	Biokraft-NachV	23.02.2011
DE-B-BLE-BM-ZSt-103	Global-Creative-Energy GmbH	01.03.2010	BioSt-NachV	28.02.2011
DE-B-BLE-BM-ZSt-104	GUT Zertifizierungsgesellschaft mbH	24.02.2010	Biokraft-NachV	23.02.2011
DE-B-BLE-BM-ZSt-105	Peterson Control Union Deutschland GmbH	01.03.2010	Biokraft-NachV	28.02.2011
DE-B-BLE-BM-ZSt-106	AgriZert Zertifizierungs GmbH	31.03.2010	Biokraft-NachV	30.03.2011
DE-B-BLE-BM-ZSt-107	Agro Vet-Lebens- und Umweltqualität Sicherung GmbH (AUSTRIA)	21.04.2010	Biokraft-NachV	20.04.2011

Note: Certification system and certification bodies possess "preliminary" state of approval
Source: the German Federal Agency for Agriculture and Nutrition, BLE

The structure of the certification process adopted in Germany covers all economic operators involved in the biofuels supply chain but in a different manner. The operators defined as "interfaces" are obliged to have a certificate (proof of compliance). The last interface in the production chain issues the proof of sustainability which is then used by a supplier of the biofuel to qualify for public subsidies. Interfaces are:

- companies that receive biomass from the growers of such biomass for purposes of further processing (referred to as first gathering points);
- oil mills, and
- refineries that process liquid and gaseous biomass to the required quality to use as a biofuel or produce biofuels from the biomass used.

The other operators downstream the production chain (agricultural companies, traders, storage facilities) are subject to inspections (control checks) carried out by certification bodies while deciding on a particular interface (they are not obliged to have a certificate by themselves, see Annex E).

Agricultural companies are required to submit self-declaration forms (See annex D) and undergo relevant inspections if they occur. According to § 50 of the German Biofuels

Sustainability Regulation (BioKraft-NachV) at least 5 percent of the relevant companies outside the EU must be checked per year. The self-declaration form is to be submitted for all crops that are to be traded as sustainable biomass and is applied to just one harvest.

Suppliers (operators upstream in the supply chain) keep proofs of sustainability with the Sustainability Regulations (issued by the last interface) and partial proofs of sustainability with the Sustainability Regulations (issued by competent authority on the consignments for which proofs of compliance have been already issued by an interface) from the last manufacturer over the entire supply chain and can then sell the amount specified to a customer.

The certification process of an interface comprises the following stages:

- 1) signing a contract between pertinent certification body and an interface;
- 2) first inspection and subsequent issuance of a certificate (denial);
- 3) surveillance inspection and subsequent decision of the certification body.

After the contract is signed, the first inspection determines whether the applying enterprise (the interface) has the "structural prerequisites" for fulfilling the legal requirements. Legal requirements can differ substantially depending on the position of the company in the supply chain. However, at this stage the inspection only checks if the company will be able to document a flow of goods qualified as sustainable biomass in a mass balance system. This means that only "structures" and not actual operative movements are monitored. If these are shown to meet the requirements, the certification body issues a certificate.

According to § 27 of the German Biofuels Sustainability Regulation (BioKraft-NachV), certificates should contain the registration number of the certification body and certification system (See table 3.1) and is valid for 12 months from the date of issuance. The certificates are then passed on with the delivery note to the client. The last interface must register all issued proofs of compliance with sustainability regulations with the BLE.

Surveillance inspection takes place upon the expiry of six months after the first audit at the latest. This inspection checks whether the structures and processes inspected at the first stage are actually implemented in practice, that is, whether the flow of biomass has been properly documented and verified. After the data has been verified, spot checks on the interface's structure as well as the units connected with it (farmer, transport, storage facilities) are made. After all relevant assessments are completed, the certification body issues and communicates its decision to the applicant that may be appealed. The inspection is repeated annually.

Germany recognizes all certification bodies and certification systems that have been recognized by the EC or in a bilateral agreement between the EU and a third country. If this is maintained by other member states in their regulations, third countries would benefit from an easy-to-get recognition of certificates across the EU.

Recommendations

- 1) The Ukrainian government should use the opportunity to *sign a bilateral agreement* with the European Commission specifying the recognition of Ukrainian regulations with regard to the Directive. Once signed, this agreement would lower administrative burden for farmers to supply necessary documents for control missions of auditors;
- 2) For the purpose of monitoring of specific requirements imposed and facilitating their implementation in practice the *establishment of a working group* may be initiated. Such working group would comprise business associations, traders, farmers, experts, and officials that would benefit from developing a single position in the interactions with trading partners in the EU and ensure that the relevant information is timely collected and disseminated directly to the parties affected by relevant regulations;
- 3) Interested rapeseed producers should be involved into *pilot certifications* with accredited certification bodies this year. This would allow all parties to get experience with the certification process in Ukraine and to introduce relevant adjustments before a mass certification begins in the following years.

List of useful documents and links

1. EU Directive:

Directive 2009/28/EC of the European Parliament and of the Council of 23 April 2009 on the promotion of the use of energy from renewable sources and amending and subsequently repealing Directives 2001/77/EC and 2003/30/EC. Available at <http://eur-lex.europa.eu/en/index.htm>;

2. German Regulations:

Bioelectricity Sustainability Regulation (BiomassestromNachhaltigkeitsverordnung – BioSt-NachV) from July 23, 2009;

Biofuels Sustainability Regulation (BioKraftstoff-Nachhaltigkeitsverordnung – BiokraftNachV) as of 30 September, 2009. Available at Bundesgesetzblatt online www.bgbl.de (Official Journal).

3. BLE Guidelines:

Leitfaden Nachhaltige Biomasseherstellung. Available at www.ble.de under "Kontrolle und Zulassung".

4. Articles and presentations:

Strubenhoff, H-W. "Nachhaltigkeit und internationaler Agrarhandel. Ukrainer produzieren nachhaltiger als Deutsche". Agrarzeitung, Ausgabe 15 / 16. April 2010;

Bockey, D. "The German Sustainability Decree-A Blueprint for the EU Biofuels Sector?". F.O. Licht. World Ethanol and Biofuels Report, Vol.8 February, 2010;

Strubenhoff, H-W and S. Kandul "New sustainability requirements for biofuels in the EU: what Ukrainian farmers should know" (in Russian). Presentation for Round Table discussion at the Ministry of Agriculture Policy of Ukraine, April 28, 2010.

5. Webpages:

European BioDieal Board. <http://www.ebb-eu.org>;

German Federal Agency for Agriculture and Nutrition, BLE. <http://www.ble.de>;

German Federal Agency for Renewable Resources, FNR. <http://www.fnr.de>;

International Sustainability and Carbon Certification System, ISCC. <http://www.iscc-system.org>.

Annex A
National shares and targets for shares of biofuels consumption in the EU

Member state	Market share of biofuels						National targets			
	2003	2004	2005	2006	2007	2008	2009	2010	2015	2020
Austria	0.06	0.06	0.93	3.54	4.23	5.48	-	5.75	-	10.00
Belgium	0.00	0.00	0.00	0.00	-	-	-	-	-	10.00
Bulgaria	-	-	-	0.00	-	-	3.50	5.75	8.00	10.00
Cyprus	0.00	0.00	0.00	-	0.11	1.94	2.50	2.50	-	10.00
Czech Republic	1.09	1.00	0.05	0.50	-	1.77	3.42	5.75	-	10.00
Germany	1.21	1.72	3.75	6.32	7.35	5.84	5.25	6.25	-	10.00
Denmark	0.00	0.00	-	0.15	-	0.20	-	0.75	-	10.00
Estonia	0.00	0.00	0.00	0.12	0.06	-	-	5.75	-	10.00
Greece	0.00	0.00	0.01	0.75	-	1.47	-	5.75	-	10.00
Spain	0.35	0.38	0.44	0.53	-	-	-	5.75	-	10.00
Finland	0.11	0.11	-	0.02	0.04	-	4.00	5.75	-	10.00
France	0.67	0.67	0.97	1.77	3.57	5.71	6.25	7.00	10.00	10.00
Hungary	0.00	0.00	0.07	0.28	-	-	-	5.75	-	10.00
Ireland	0.00	0.00	0.05	0.09	0.60	1.62	-	5.75	-	10.00
Italy	0.50	0.50	0.51	0.46	0.46	0.59	-	5.75	-	10.00
Lithuania	0.00	0.02	0.72	2.29	4.35	4.30	-	5.75	-	10.00
Luxembourg	0.00	0.02	0.02	0.03	-	-	-	-	-	10.00
Latvia	0.22	0.07	0.33	0.22	0.14	0.17	-	-	-	10.00
Malta	0.02	0.10	0.52	0.58	1.08	-	-	1.25	-	10.00
Netherlands	0.03	0.01	0.02	0.30	2.00	3.26	4.50	5.75	-	10.00
Poland	0.49	0.29	0.47	0.92	0.68	-	4.60	5.75	-	10.00
Portugal	0.00	0.00	0.00	1.02	2.54	-	-	10.00	-	10.00
Romania	-	-	-	0.00	0.80	2.33	-	3.30	-	10.00
Sweden	1.32	2.28	2.23	3.10	4.00	3.50	-	5.75	-	10.00
Slovenia	0.00	0.06	0.35	0.28	0.83	-	2.00	3.00	5.00	10.00
Slovakia	0.14	0.15	-	1.04	2.59	2.65	-	-	-	10.00
United Kingdom	0.03	0.04	0.18	0.45	0.84	2.04	3.00	4.00	-	10.00
EU-27	0.50	0.70	1.00	1.76	2.31	2.62	-	5.75	-	10.00

Source: Union for Promotion of Oilseeds and Protein Plants, Berlin, 2009.

Annex B

National overall targets for the share of energy from renewable sources in gross final consumption of energy in 2020

Member State*	Share of energy from renewable sources in 2005,%	Target for share of energy from renewable sources in 2020,%	Increase, 2020 to 2005, percent points	Lag between GHG targets and GHG emissions, 2012 to 2007, percent points**
(1)	(2)	(3)	(4)	(5)
United Kingdom	1.3	15	13.7	5.5
Denmark	17	30	13.0	-17.1
Ireland	3.1	16	12.9	-11.5
Germany	5.8	18	12.2	1.4
Italy	5.2	17	11.8	-13.4
Netherlands	2.4	14	11.6	-3.4
Spain	8.7	20	11.3	-37.2
Greece	6.9	18	11.1	1.8
Belgium	2.2	13	10.8	2.4
Austria	23.3	34	10.7	-24.3
Portugal	20.5	31	10.5	-9.1
Cyprus	2.9	13	10.1	N/A
Luxembourg	0.9	11	10.1	-26.1
Malta	0.0	10	10.0	N/A
Finland	28.5	38	9.5	-10.3
Sweden	39.8	49	9.2	13.3
Slovenia	16.0	25	9.0	-9.8
Hungary	4.3	13	8.7	28.2
Lithuania	15.0	23	8.0	41.9
Poland	7.2	15	7.8	23.2
Latvia	32.6	40	7.4	45.4
Slovak Republic	6.7	14	7.3	26.8
Estonia	18.0	25	7.0	40.3
Czech Republic	6.1	13	6.9	14.4
France	10.3	23	6.7	5.8
Romania	17.8	24	6.2	37.3
Bulgaria	9.4	16	5.6	35.0

Note:*Member states are sorted by the increase of shares of renewable energy (column (4)) **GHG targets and emission are calculated as decrease of GHG emissions from the base year (1990). "+" sign implied that a country exceeded its GHG saving target (2012) in 2007

Source: Renewable Energy Directive, Directive 2009/28/EC; GHG Inventory Summary 2009.

Annex C

Methodology of calculation of greenhouse emissions savings

(General principle, detailed prescription is to be found in part C of Annex V of the RED)

Green house gas emissions from the production and use of transport fuels, biofuels and bioliquids shall be calculated as:

$$E = e_{ec} + e_l + e_p + e_{td} + e_u - e_{sca} - e_{ccs} - e_{ccr} - e_{ee}$$

Where

E = total emissions from the use of the fuel

e_{ec} = emissions from the extraction or cultivation of raw materials;

e_l = annualized emissions from carbon stocks changes caused by land-use change;

e_p = emissions from processing;

e_{td} = emissions from transport and distribution;

e_u = emissions from fuel in use;

e_{sca} = emissions savings from soil carbon accumulation via improved agricultural management;

e_{ccs} = emissions saving from carbon capture and geological storage;

e_{ccr} = emissions savings from carbon capture and replacement;

e_{ee} = emissions savings from excess electricity from cogeneration.

Green house gas emissions from fuels, E , shall be expressed in terms of grams of CO₂ equivalent⁴¹ per MJ of fuel, gCO_{2eq}/MJ

Green house gas emission savings from biofuels and bioliquids shall be calculated as:

$$\text{SAVING} = (E_F - E_B) / E_F$$

Where

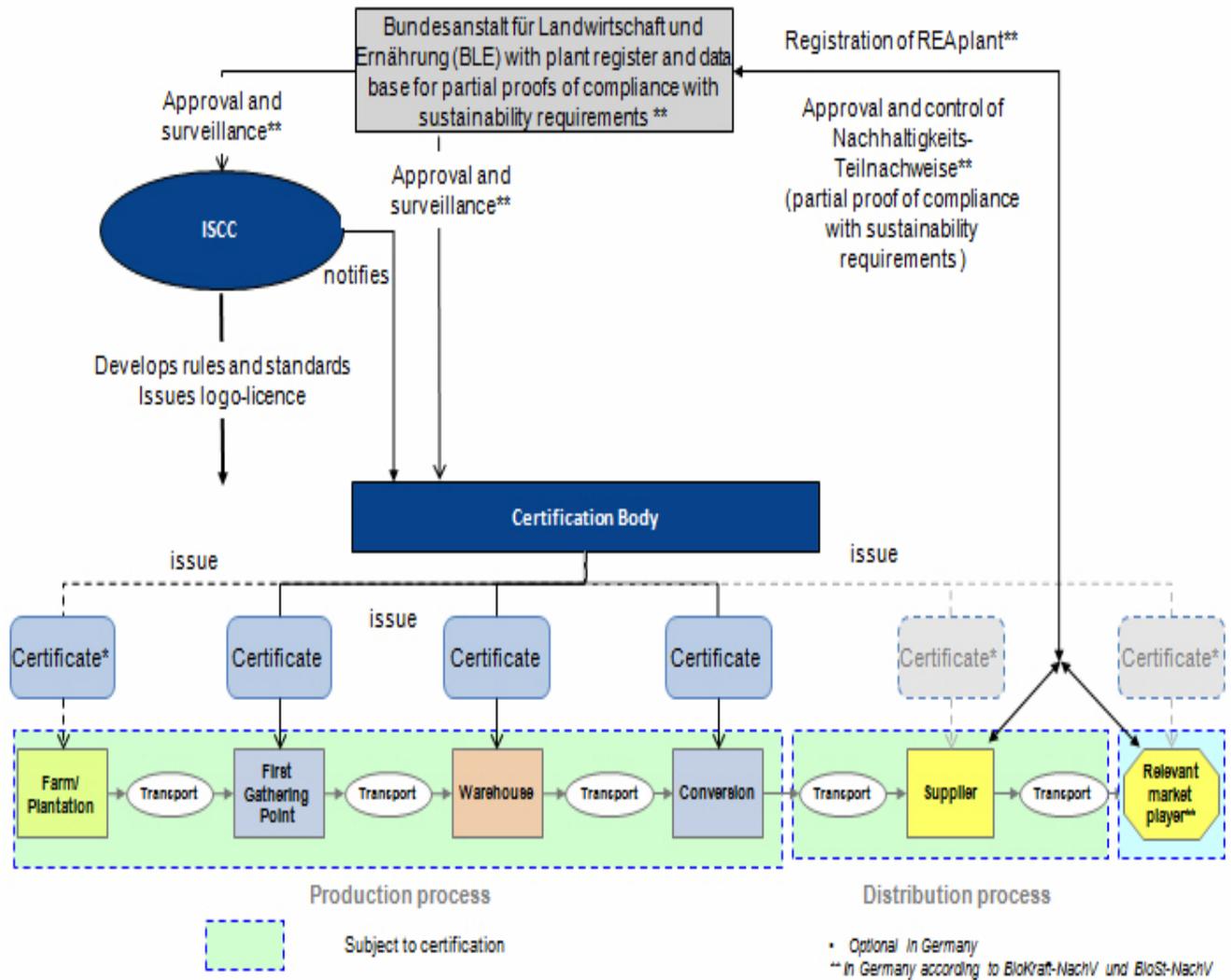
E_B = total emissions from the biofuel or bioliquid

E_F = total emissions from fossil fuels comparator

The fossil fuel comparator shall be the latest available actual average emissions from fossil part of petrol and diesel consumed in the Community as reported under Directive 98/70/EC. If no such data available, the value used shall be 83.8 gCO_{2eq}/MJ

⁴¹ CO₂, NO₂, and CH₄

Annex D
Typical certification process of sustainable biofuel supply, ISCC



Source: http://www.iscc-system.org/about_iscc/processes_and_responsibles

Annex E

The Form filled by agricultural company verifying sustainable production of biomass based on the Biofuels Sustainability Regulation and Bioelectricity Sustainability Regulation – production outside of the EU

This is to verify that the biomass grown and supplied by my farm complies with the requirements set by Sustainability Regulations with relevant evidence available (please mark the appropriate field):

1.	<input type="checkbox"/>	Biomass has been grown on an arable land that had this status before 01.01.2008. Besides, it has been grown on that land that is not classified as conservation areas (paragraphs 4 – 6 of Sustainability Decrees), that was converted into arable land after 01.01.2008.
2.	<input type="checkbox"/>	Biomass has been grown in the protected regions allowed for cultivation. The conditions relevant to protected regions status are met.
3.	<input type="checkbox"/>	The documents indicating the place of cultivation of biomass (verified with polygonometric motion method in accordance with paragraph 26 of Sustainability Regulations or with another similar method of arable area and land parcels identification)
	<input type="checkbox"/>	available at my farm at any time upon request
	<input type="checkbox"/>	available at fist stage buyer of the biomass grown by me.
4.	<input type="checkbox"/>	For green house gas emission balance default value will be applied (paragraph 8 and Annex 2 of Sustainability Decrees).

Note: This self-declaration confirms that the agricultural producer recognizes that auditors certified by Federal Agency for Agriculture and Nutrition are allowed to check the compliance of the information provided with the requirements envisaged by paragraphs 4-7 of Sustainability Regulations.

Place, date, signature

Federal Agency for Agriculture and Nutrition blank

Source: Guidelines for sustainable biomass production, the Federal Agency for Agriculture and Nutrition

*) The form for producers inside the EU contains an additional question fro self-declaration: "cross compliance" rules.

Annex F

Development of sustainability standards for biofuel feedstocks in the world

Standard	Description	Geographic scope	Compatibility with RED	
			Biodiversity	Carbon stock
Assured Combinable Crops Schemes (ACCS)	UK standard for combinable crops started in 1998. Covers wheat, barley, oilseeds, pulses, sugar beet and other crops. Main focus on food safety, includes environmental criteria	England and Walse	Yes	Partial
Better Sugar Cane Initiative (BSI)	Global non-profit initiative dedicated to reducing the environmental and social impacts of sugarcane production. The standard under development (due 2010)	Members are key sugarcane producers including Brazil, Australia, India and Dominican Republic	Not accessed	Not accessed
Forest Stewardship Council (FSC)	International NGO promoting responsible management of the world's forest. Founded in 1993. Covers a large area and volume of certified forest. Will be relevant for 2nd generation of biofuels	National working groups in more than 50 countries	Yes	No
Linking Environment And Farming (LEAF)	Supplementary standard focusing on sustainable agriculture (certification possible after global standard like ACCS has been met). Launched in 2003	18 countries worldwide (Europe, Africa, the Americas and Asia)	Partial (no reference dates)	No
Roundtable on Sustainable Palm Oil (RSPO)	Criteria adopted in 2005. Certification and accreditation procedures adopted in 2007. from 2008 – working group on GHG, voluntary implementation of GHG recommendations	Operates in Indonesia, Malaysia and Papua New Guinea. Work is underway to extent its cover to Ghana, Thailand, the Solomon Islands, Colombia and Brazil	Yes	Partial
Roundtable on Responsible Soy	Founded in 2006. A "field testing Version" published in May 2009. Feedback and certification system is planned for June 2010	Field test are carried in Argentina, Brazil, Paraguay, and India. In the medium term target countries are China, the US, Uruguay and Bolivia.	Partial (reference date May 2009)	No
Sustainable Agriculture network /Rainforest Alliance (SAN/RA)	Coalition of independent non-profit conservation organizations that promote social and environmental sustainability of agricultural activities by developing standards. In April 2009 a standard addendum was issued to cover palm oil, sugarcane, soy, and sunflower. To get a certificate a plantation must meet 14 critical criteria and 80% of the SAN's other criteria	19 countries, including South and Central America, Africa, SE Asia	Yes	Partial

Source: Development of Feedstock Sustainability Standards. Final report of Renewable Fuel Agency, November 2009.

Annex F
Development of sustainability standards for biofuels in the world (contd.)

Standard	Description	Sustainability criteria				
		Biodiversity	Carbon	Soil, water, air	Social	Indirect land use change
Roundtable on sustainable biofuels (RSB)	Started in August 2008. Steps are being taken towards creating a risk-based certification system. The first certificates scheduled for 2010. covers all biofuels	Yes	Yes	Yes	Yes	No
Global Bioenergy partnership (GBEP)	Started in 2005 and aimed at provision of relevant, practical, science-based, voluntary sustainability criteria... covers all bioenergy. Under development	Yes	Yes	Yes	Yes	Yes
European Committee for Standardization (CEN)	A major provider Of European Standards and technical specifications. Covers all feedstock for energy application. CEN has a working group on "indirect effects which pending a decision whether the standard will cover only sustainability criteria of RED or will have a broader scope."	Yes	Yes	No	No	No

Source: Development of Feedstock Sustainability Standards. Final report of Renewable Fuel Agency, November 2009. European Committee for Standardization. Brussels, 2009.