Supplementary note to an analysis of the income from energy crops in relation to other crops
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Publication date: 2011

Document Version
Publisher's PDF, also known as Version of record

Citation for published version (APA):
Supplementary note to an analysis of the income from energy crops in relation to other crops (in FOI Udredning 2011/11)

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(FOI Udredning) 2011 / 12
FOI Commissioned Work 2011 / 12
(FOI Udredning 2011 / 12)

Supplementary note to an analysis of the income from energy crops in relation to other crops
(in FOI Udredning 2011/11)

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Prepared for The Danish AgriFish Agency according to the agreement on public sector services 2011 between the Institute of Food and Resource Economics and the Ministry of Food, Agriculture and Fisheries

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Supplementary note to note of 27 July 2011 provided by the Institute of Food and Resource Economics (University of Copenhagen) entitled “Income from energy crops in relation to other crops”

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Background
In July 2011 the Institute of Food and Resource Economics conducted an analysis for The Danish Agrifish Agency concerning the expected net return from cultivating energy crops compared to the net return from cultivating agricultural crops on the same types of land. The analysis was to be included in considerations on granting support for production of perennial energy crops.

In a request (of December 7, 2011) The Danish Agrifish Agency asked for a more detailed specification of the calculations in table 1 in the above mentioned note “Income from energy crops in relation to other crops”, in which the annuitized costs of establishing perennial energy crops are specified separately. This has been done in table 1 below, where the costs of establishing the crop have been extracted from the cost components “Unit costs” and “Machinery and labour costs”.

The establishment costs (which include costs of soil preparation, chemical weed control, start fertilizer, cuttings and planting) amount to DKK 13,185 per hectare. As shown in the table this corresponds to annuitized establishment costs of DKK 976 per hectare per year. The costs categories "Unit costs” and “Machinery and labour costs” have been reduced by the same amount in total.
Table 1. Calculated land rents when cultivating energy willow (short-rotation coppice) on different soil types, 2009 prices, DKK/ha/year (annuitized)

<table>
<thead>
<tr>
<th></th>
<th>Poor sandy soil</th>
<th>Good sandy soil</th>
<th>Sandy soil average</th>
<th>Clay soil</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dry matter, tonnes per ha/year</td>
<td>8</td>
<td>10</td>
<td>9</td>
<td>14</td>
</tr>
<tr>
<td>Establishment costs*</td>
<td>976</td>
<td>976</td>
<td>976</td>
<td>976</td>
</tr>
<tr>
<td>Unit costs, operating costs</td>
<td>1,099</td>
<td>1,099</td>
<td>1,099</td>
<td>1,099</td>
</tr>
<tr>
<td>Machinery and labour costs, operating costs</td>
<td>325</td>
<td>325</td>
<td>325</td>
<td>325</td>
</tr>
<tr>
<td>Harvest and transport to power plant</td>
<td>3.352</td>
<td>3.450</td>
<td>3.401</td>
<td>3.640</td>
</tr>
<tr>
<td>Total cultivation costs</td>
<td>5.752</td>
<td>5.850</td>
<td>5.801</td>
<td>6.040</td>
</tr>
<tr>
<td>Value of willow chips</td>
<td>5.440</td>
<td>6.800</td>
<td>6.120</td>
<td>9.520</td>
</tr>
<tr>
<td>GM/land rent before grant</td>
<td>-313</td>
<td>950</td>
<td>319</td>
<td>3.480</td>
</tr>
<tr>
<td>Value of establishment grant (DKK 4,200 per ha)</td>
<td>311</td>
<td>311</td>
<td>311</td>
<td>311</td>
</tr>
<tr>
<td>GM/land rent including grant</td>
<td>-2</td>
<td>1.261</td>
<td>630</td>
<td>3.791</td>
</tr>
</tbody>
</table>

* Soil preparation, chemical weed control, start fertilizer, cuttings and planting.

Source: Dubgaard et al. (2009).