

## Follow-up BUS-report<sup>1</sup>

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# How to get more wood from the Dutch forests?

## 1. Introduction

The Dutch forests have a large biomass potential, however it seems that hardly any wood becomes available for biomass purposes. Why is that? Are the forest owners not willing to sell their wood for biomass utilization or are other factors involved which cause the low harvest rate of (private) forest owners? A previous BUS quick-scan<sup>2</sup> indicated that forest managers have no problem selling their wood for biomass utilization if they get the same price as for other uses. The willingness of forest owners and forest managers to increase their harvest levels mainly depends on the role of wood production in the management of their forest and on the type of forest owner. Private forest owners seem to be more willing to increase their harvest level (i.e. if extra financial incentives are provided) than public forest owners, such as municipalities, ministry of defence, state forest service. Hence, the most effective strategy to enhance biomass yields from Dutch woodlands is to focus on private forest owners, especially those who own a rather small forest area (less than 250 ha). The private forest owners have about 32% of the forest area in the Netherlands under their management, i.e. 114,000 ha. The largest part (83%) of this area consists of forest areas of less than 250 ha that are privately owned. Within this group of small forest owners approximately 62,000 ha consists of privately owned forest areas of less than 5 ha. This latter group of very small forest owners is very difficult to reach, because they do not have to register their possession at the Bosschap; this in contrast to forest owners that own a forest area of more than 5 ha.

Many private forest owners are harvesting less wood than the sustainability of their forests would allow. The above mentioned quick-scan indicated that a better exchange of information (forestry extension) and financial incentives for making forest management plans would help changing their attitude.

However, some important questions still remain unanswered:

- How many private forest owners and municipalities, owning more than 5 ha and less than 250 ha of woodland, currently registered at the Bosschap, do harvest wood?
- Which factors, according to the forest owners, are limiting their harvest activities?
- Would a financial incentive result in an increase in the wood volume that is harvested by private forest owners?
- Which share of the private forest owners and municipalities, owning more than 5 ha and less than 250 ha of woodland, currently registered at the Bosschap base their management activities on the results of an assessment of the annual increment of their forest?

## 2. Method

In order to answer these questions a follow-up has been performed in which a questionnaire (see annex 1) has been sent to all private forest owners and municipalities in The Netherlands that own a forest area of more than 5 ha and less than 250 ha, which were registered at the Bosschap in 2005. The questionnaire has focused on this group of private forest owners.

During the analysis of the results the respondents have been divided into four different subgroups based on the forest area they own (i.e. 5-25, 26-50, 51-100, and 101-250 ha). A further distinction was made between respondents belonging to the group of private forest owners and the group of municipalities. In this way, reliable and representative information about the harvest behavior of the 'most promising' forest owners could be derived. In addition, the willingness of forest owners to harvest more wood as well as the incentives needed, has been assessed.

<sup>1</sup> Copying of (part of) this report is allowed only with proper citation. This report aims to provide a quick scan of the subject matter and should therefore be used as such. The contents do not represent the official view of the BUS nor of any of its affiliates, but are personal to the writer. The BUS accepts no liability for the use of this information nor for any consequences that may result from it.

<sup>2</sup> Report on BUS-ticket A4, November 2004, Jan Oldenburger and Leen Kuiper

### 3. Results

#### General

The response rate to the questionnaire was quite high: 28%. 412 of a total of 1471 forest owners which have been addressed, have responded to the questionnaire. The first analyses of the questionnaires resulted in 388 questionnaires that could be used for further analyses. These 388 were divided into 339 private forest owners and 49 municipalities. The response group was divided into four subgroups based on their forest area (see table 1). To check the representativeness of the response group with respect to the total population of forest owners in The Netherlands, the share of the different subgroups within the response group were compared with the share of these subgroups in the total population. This comparison made it clear that the results from the response group can be used to draw conclusions on the total population of forest owners owning a forest area of more than 5 ha and less than 250 ha in the Netherlands. The 1241 private forest owners from this group together own a forest area of 33,000 ha.

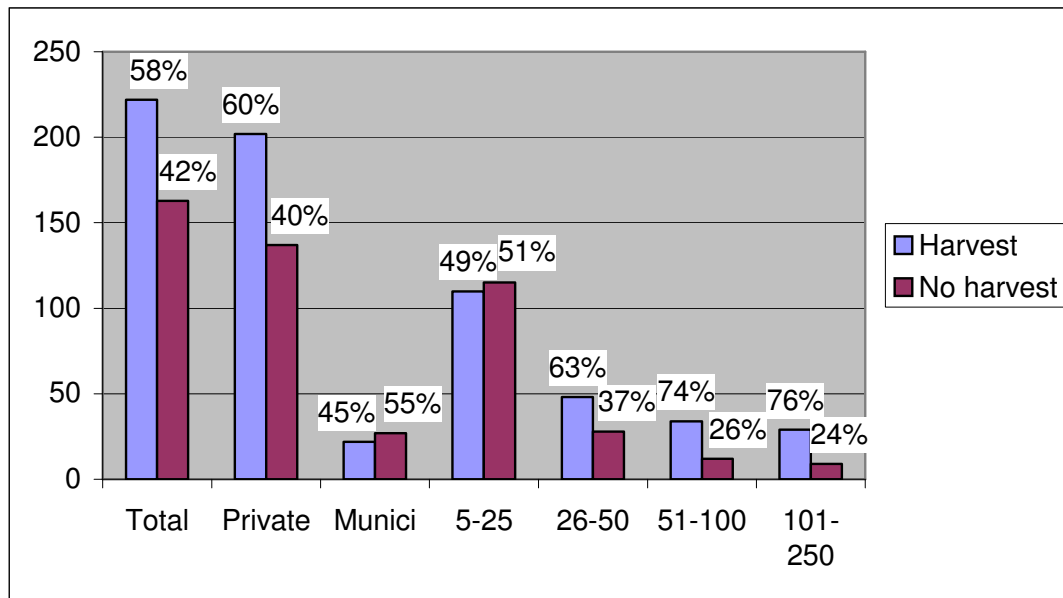
Table 1. The composition of the population of addressed forest owners and of the response group

<b>Total population</b>	<b>Total</b>	<b>5-25 ha</b>	<b>26-50 ha</b>	<b>51-100 ha</b>	<b>100-250 ha</b>
Number of forest owners in total population	1471	988	208	162	113
Number of private owners	1241	897	168	116	60
Number of municipalities	230	91	40	46	53
<b>Response group</b>	<b>Total</b>	<b>5-25 ha</b>	<b>26-50 ha</b>	<b>51-100 ha</b>	<b>100-250 ha</b>
Number of forest owners in total questionnaire	388	225	76	46	38
Number of private owners in questionnaire	339	207	68	41	23
Number of municipalities in questionnaire	49	18	9	5	17

#### Harvest yes or no?

In general the number of forest owners that do harvest wood from their forest is larger than the number that don't: 58% of the respondents do harvest wood (figure 1). There is a noticeable difference in harvest behavior between private forest owners and municipalities. Furthermore, the results indicate that forest owners with larger possessions are more inclined to harvest wood than forest owners that possess small forest areas.

Figure 1. Harvest or no harvest by the different categories of respondents



**Limiting factors for wood harvest**

The forest owners were asked to mention the most important factors which limit wood harvesting in their forests (three factors maximum) (see figure 2). Not surprisingly, 20% of the forest owners mention the low wood price as the most limiting factor for their harvest activities. Especially private forest owners that harvest wood stress this point. Ranked second, with a share of 17%, is the fact that wood production is no objective in forest management. This factor is mentioned most by municipalities and private forest owners that own a small (5-25 ha) forest area.

If the limiting factors mentioned by forest owners that harvest wood and owners that don't are compared, slight differences are visible (figure 3). The low wood price is mentioned most by the forest owners that do harvest wood. Only 26% of forest owners that don't harvest wood mention the low wood price as a limiting factor. The main limiting factors for the forest owners that don't harvest wood are the young age of the forests and the fact that wood production isn't an objective in their forest management.

Figure 2. Limiting factors for wood harvest mentioned by the response group

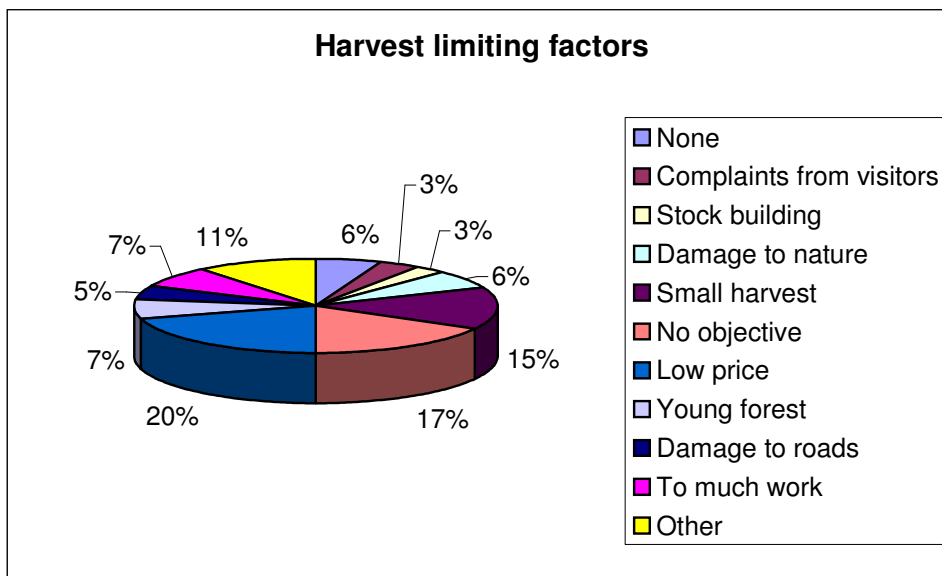
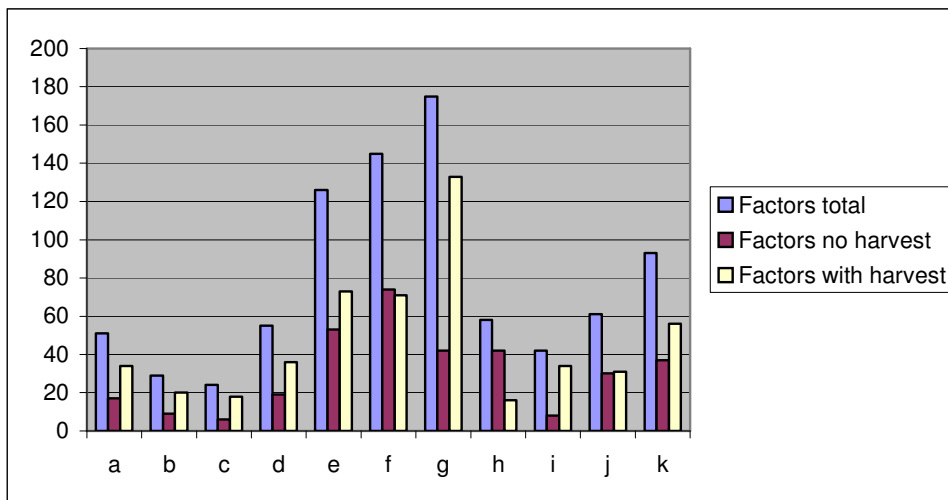


Figure 3. Limiting factors in total and mentioned by forest owners that do and don't harvest wood



a. None, b. Complaints from visitors, c. Stock building, d. Damage to nature, e. Small harvest, f. No objective, g. Low price, h. Young forest, i. Damage to roads, j. To much work, k. Other.

### Financial incentives

The forest owners were asked if a financial incentive of 10 euro per cubic meter standing timber would result in higher harvest levels. The question focused on the private forest owners because earlier results indicated that this category of forest owners is more eager to react on a financial incentive than e.g. municipalities.

The results show that this financial incentive would work for 24% of private forest owners that have responded to the questionnaire (i.e. 83 out of 339). 72% of these private forest owners were already harvesting wood. This kind of financial incentive will have the largest effect on private forest owners that own a forest area of less than 100 hectares and which are already actively engaged in wood harvesting (see table 2). On average 30% of the private forest owners that are already engaged in wood harvesting, would increase their harvest level because of the proposed financial incentive.

Table 2. The number of private forest owners owning an area between 5 and 250 ha that already harvest wood and would react positively on a financial incentive of 10 euro per m<sup>3</sup> standing timber

	Number of owners that harvest wood	Positive reaction	Share
5-25	106	26	25%
26-50	44	17	39%
51-100	32	13	41%
101-250	20	4	20%
<b>Total</b>	202	60	30%

The low wood price is mentioned by 48% of the private forest owners as the most limiting factor for their harvest activities. It is, however, striking that 54% of these private forest owners indicated that they would not increase their harvest if they would get a financial incentive of 10 euro per m<sup>3</sup>. This is partly due to the fact that some of these owners have indicated that they already harvest the maximum amount of wood from their forest. For the other owners limiting factors other than the low wood price are apparently more important in determining their harvest volume. The two main other factors are the fact that wood production is no objective in forest management and the small harvest volume.

### Management plan/annual increment assessed

The forest owners were asked if their annual increment has been assessed during the last ten years. This was done in order to see if there is a relation between having a regular assessment of the annual increment and harvesting wood or the decision whether it is sustainable to harvest more wood from the forest.

48% of in total 221 wood harvesting forest owners have indicated that it would be sustainable to harvest more wood from their forest, 51% indicated that they can not harvest more wood in their forest; and 1 % didn't know. Surprisingly, these assumptions made by the forest owners are rarely based on an assessment of the annual increment during the last 10 years. Only 14% of the forest owners that indicate that they could sustainably harvest more wood have done an annual increment assessment during the last ten years. This percentage is higher (24%) for the forest owners that indicate that it is not sustainable to harvest more wood.

Table 3 shows that only 18% of the forest owners that responded to the questionnaire have done an annual increment assessment during the last 10 years. 64% of these owners do harvest wood and 36% don't. The majority of the forest owners with a forest area smaller than 50 hectares haven't got a management plan nor a recent assessment of the annual increment in their forest. Only 15% of forest owners with holdings smaller than 50 ha have their annual increment assessed during the last 10 years. The share of forest owners that can base their harvest activities on the results of an assessment of the annual increment in their forest is higher (24%) for the 3<sup>rd</sup> (51-100) and 39% for the 4<sup>th</sup> subgroup (101-250) of forest owners, but is still quite low.

If the results are extrapolated to the total number of forest owners owning a forest area between 5 and 250 ha, approximately 1207 (i.e. 82%) of the total number of 1471 forest owners which have been

addressed do not base their management activities on a recent assessment of the annual increment in their forest. Of these 1207 forest owners 672 are engaged in wood harvesting (i.e. 55%).

Table 3. The number of annual increment assessments that were made by the forest owners that responded to the questionnaire.

	Number of owners	Annual increment assessed	Share
<b>5-25</b>	225	34	15%
<b>26-50</b>	76	10	13%
<b>51-100</b>	46	11	24%
<b>101-250</b>	38	15	39%
<b>Total</b>	385	70	18%

#### 4. Discussion

There are a number of possibilities to increase the amount of wood that is harvested by forest owners owning a forest area between 5 and 250 ha. It is, however, difficult to determine which strategy could best be followed. The results of this questionnaire could be of some assistance:

##### Offering a financial incentive

This assessment of the harvesting attitude indicates that a high financial incentive is the most determining factor to substantially increase wood harvest levels of private forest owners in the Netherlands. In the questionnaire an incentive of 10 euro per m<sup>3</sup> standing timber was suggested, which is about equal to the current market price for standing (pulp) timber. From the category of forest owners that are not involved in wood harvesting, only 85 owners would consider to start (or resume) harvesting wood from their forest because of the proposed incentive. However, the proposed financial incentive would increase the harvest level of 30% of private forest owners that are already harvesting wood. The group of forest owners that would increase their harvest level if the financial incentive is offered to them manages about 8,600 ha. Assuming a 20% increase in utilization rate from 60 to 80% of the annual increment, the effect of this proposed (and rather generous) financial incentive will be an increased harvesting volume of 14,000 m<sup>3</sup>/annum.

##### Stimulating harvest activities

The results of the questionnaire show that presently there is a large number of forest owners that do not harvest wood from their forest: within the response group 40% of the private forest owners and 50% of the municipalities do not harvest wood. Extrapolation of the results to the total population of forest owners in the Netherlands suggests that 533 private forest owners and 130 municipalities do not harvest wood from their forest (table 4). As expected, most of the forest owners that don't harvest wood can be found in the first subgroup of small holders, who own 5-25 ha of woodland. Stimulating the private forest owners from this subgroup to harvest (more) wood could result in an increase of the area in which wood is harvested with approximately 5,900 ha, in which an additional volume of about 33,000 m<sup>3</sup> of wood can be harvested each year (given an average forest area of 11.8 ha per owner an annual increment of 8 m<sup>3</sup>/ha/y and a harvesting rate of 70%). However, it will be quite difficult to reach these forest owners and to overcome problems associated with small harvest volumes and the scattered location of the forests areas.

These problems could partially be overcome by offering a full service contract, by which a contractor takes over the wood harvesting and selling activities from the forest owner. The contractor can offer the harvested wood to the market collectively, thereby negotiating a better price. In this way a larger volume of industrial roundwood will enter the market, part of which can become available for bio-energy purposes.

This full service concept can also be offered to the owners from subgroup 2. It will probably not be viable to offer a full service contract to the owners from subgroups 3 and 4, because the forest area owned by these forest owners will already provide a relatively large amount of wood and thus they are already in a position to negotiate a good price for their wood.

### **Making a management plan, including an assessment of the annual increment**

Although it cannot be concluded from this questionnaire that stimulating the forest owners to develop a management plan for their forest will always result in significantly higher harvest levels, stimulating forest owners to do so may be an effective way to increase the harvest level from the forest owners with a forest area of more than 5 ha and less than 250 ha. An assessment of the annual increment in their forest will help them to determine what amount of wood can be sustainably harvested. If this stimulation measure is aimed at the 3<sup>rd</sup> and 4<sup>th</sup> subgroup which owns a forest area of more than 50 ha, the total forest area under a management plan in the Netherlands would grow substantially. As a consequence the harvest level will probably increase in this forest area. It would involve 103 owners from subgroup 3 (88 private forest owners and 15 municipalities) and 53 owners from subgroup 4 (37 private forest owners and 16 municipalities) with a total area of approximately 15.000 ha. Assuming that better information on their actual harvesting activities may lead on average to a 10% increase in utilization rate, the effect will be an increased harvest volume of about 12,000 m<sup>3</sup>/a.

Table 4. The number of forest owners owning a forest area of more than 5 ha and less than 250 ha that do not harvest wood

	Private owners	Municipalities	Total
<b>5-25</b>	440	61	501
<b>26-50</b>	59	22	81
<b>51-100</b>	26	28	54
<b>101-250</b>	8	19	27
<b>Total</b>	533	130	663

### **5. Conclusions**

1. Although the group of private forest owners who possess very small woodlands less than 5 ha in size has a substantial forest area under their management (i.e. totaling 62,000 ha), they will be very hard to reach, because they are not registered at the Bosschap. Hence their potential contribution to the supply of more woody biomass from the Dutch forest will be negligible.
2. Stimulating the category of small private forest owners (5-25 ha) to harvest more wood from their forest will have the largest effect on the amount of wood that becomes available from private forest owners owning a forest area between 5 and 250 ha. It may result in 33,000 m<sup>3</sup> of wood harvested additionally each year. Some of the problems encountered by the forest owners from this subgroup may be overcome by offering them a full service contract.
3. The rather high financial incentive of 10 euro/m<sup>3</sup> needed to bring about a change in attitude may result in an additional 14,000 m<sup>3</sup>/a.
4. Another (effective) measure to increase the harvest level is by offering private forest owners the opportunity to make and implement a management plan for their forests<sup>3</sup>. This will result in an increased harvest volume of about 12,000 m<sup>3</sup>/a.
5. All three stimulation measures combined may result in an additional volume of **59,000 m<sup>3</sup>/a**.

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<sup>3</sup> Combining the full service concept with a management plan may be a good way to stimulate and finance management plans. It is important that the company that is writing the management plan is independent of the company that is harvesting and selling the wood. The forest owner too should be involved in this process to assure a certain level of independence.

## Annex 1: wood harvest questionnaire

Name ownership/organization (if applicable): .....

Contact person: .....

Place: .....

1. What is the size of your forest area? : ..... ha

2. Do you harvest wood from your forest?  yes  
 No (continue with question 5)

3. How many m<sup>3</sup> of wood do you harvest each year? : ..... m<sup>3</sup>

4. Would it be sound to harvest more wood from your forest?  
 Yes  
 No, I already harvest the maximum amount

5. Has your annual increment been assessed in the last ten years?  Yes  
 No

6. What are according to you the factors that hinder the harvest activities in your forest most (3 hindering factors maximum)?

- |   |   |
|---|---|
| <input type="checkbox"/> None                                   | <input type="checkbox"/> Wood harvesting isn't an objective |
| <input type="checkbox"/> Complaints from visitors or neighbours | <input type="checkbox"/> Low wood price                     |
| <input type="checkbox"/> I'm increasing my stock                | <input type="checkbox"/> My forest is too young to harvest  |
| <input type="checkbox"/> Damage to nature                       | <input type="checkbox"/> Damage to roads and paths          |
| <input type="checkbox"/> The harvest size is too small          | <input type="checkbox"/> Too much work                      |
| <input type="checkbox"/> Other e.g. ....                        |   |

7. Would you harvest more wood if you would get 10 euro more per m<sup>3</sup> standing timber?  
 No  
 Yes, how much m<sup>3</sup> more? :..... m<sup>3</sup>

- Thank you for your cooperation -

Return the questionnaire **before April 15<sup>th</sup>** with the included response envelope (a stamp isn't necessary) or fax to: 0317 410 247.  
 You can also use the internet to fill in the questionnaire ([www.probos.net/enquete](http://www.probos.net/enquete)).