

## Annex 14

### Payment calculation for measure "Afforestation of agricultural land and non-agricultural land"

Table 1. Verification of payment rates for afforestation of agricultural land in areas with favourable configuration and calculation of payment rates for afforestation of non-agricultural land through planting (artificially) in favourable conditions

No	Costs	Costs PLN/ha	
		coniferous	broadleaf
1.	Preparation of soil (average cost) - ploughing up lanes with a stump cutter (95 PLN x 12 h) - complete subsoiling (55 PLN x 8 h) - complete ploughing with subsoiling (55 PLN x 9.5 h) - ploughing up and cultivating furrows (55 PLN x 13.8 h)	<b>715</b>	
2.	Seedlings (coniferous 8,000 x PLN 0.32, broadleaf 6,000 x PLN 0.49, biocenotic shrubs 500 x PLN 0.35)	2,560	3,115
3.	Seedlings used for replacement in the second planting the following year (20%) 1,600 x PLN 0.32; 1,200 x PLN 0.49	512	588
4.	Supply and heeling in of seedlings (40 km x PLN 2, PLN 140 – unloading, loading and heeling in) / 2 <sup>1</sup>	<b>110</b>	
5.	Planting (coniferous PLN10 x 200 h, broadleaf PLN 10 x 220 h)	2,000	2,200
6.	Replacement of seedlings (coniferous PLN 10 x 60 h, broadleaf - PLN 10 x 65 h, supply – PLN 220/2)	710	760
<b>Total costs of the establishment of a forest culture</b>		<b>6,607</b>	<b>7,488</b>
Payment (70% of investment costs)		4,625	5,241
<b>Proposal for payment rates</b>		<b>4,620</b>	<b>5,240</b>

<sup>1</sup> The average number of afforested agricultural land hectares per holding between 2004 and 2006.

Table 2. Verification of payment rates for afforestation of agricultural land in areas with favourable configuration and calculation of payment rates for afforestation of non-agricultural land through planting (artificially) on slopes over 12°

No	Costs	Costs PLN/ha	
		coniferous	broadleaf
1.	Preparation of soil (average cost) x 1.4 <sup>2</sup> - ploughing up of lanes with a stump cutter (95 PLN x 12 h) - complete subsoiling (55 PLN x 8 h) - complete ploughing with subsoiling (55 PLN x 9.5 h) - ploughing up and cultivating of furrows (55 PLN x 13.8 h)	<b>1,001</b>	
2.	Seedlings (coniferous 8,000 x PLN 0.32, broadleaf 6,000 x PLN 0.49, biocenotic shrubs 500 x PLN 0.35)	2,560	3,115
3.	Seedlings used for replacement in the second planting the following year (20%) 1,600 x PLN 0.32; 1,200 x PLN 0.49	512	588
4.	Supply and heeling in of seedlings (40 km x PLN 2, PLN 140 – unloading, loading and heeling in) / 2 <sup>3</sup>	110	
5.	Planting (coniferous PLN10 x 200 h, broadleaf PLN 10 x 220 h) x 1.4 <sup>2</sup> )	2,800	3,080
6.	Replacement of seedlings (coniferous PLN 10 x 60 h, broadleaf - PLN 10 x 65 h) x 1.4 <sup>2</sup> ) + supply – PLN 220/2)	950	1,020
<b>Total costs of the establishment of a forest culture</b>		<b>7,933</b>	<b>8,914</b>
Payment (70% of investment costs)		5,553	6,239
<b>Proposal for payment rates</b>		<b>5,550</b>	<b>6,230</b>

<sup>2</sup> Conversion factor used for payment rates for activities performed on slopes with a gradient over 12°.

<sup>3</sup> The average number of afforested agricultural land hectares per holding between 2004 and 2006.

Table 3. Calculation of payment rates for afforestation of non-agricultural land through planting (artificially) in unfavourable conditions<sup>4</sup> in an area with favourable configuration

No	Costs	Costs PLN/ha	
		coniferous	broadleaf
1.	Special preparation of soil (average cost) - manual preparation of 40x40x30 cm mounds (PLN 10 x 291 h) - cultivation of soil on sands susceptible to wind erosion (PLN 10 x 78 h)	<b>1,845</b>	
2.	Seedlings (coniferous 8,000 x PLN 0.32, broadleaf 6,000 x PLN 0.49, biocenotic shrubs 500 x PLN 0.35)	2,560	3,115
3.	Seedlings used for replacement in the second planting the following year (20%) 1,600 x PLN 0.32; 1,200 x PLN 0.49	512	588
4.	Supply and heeling in of seedlings (40 km x PLN 2, PLN 140 – unloading, loading and heeling in) / 2 (40 km x PLN 2, PLN 140 – unloading, loading and heeling in) / 2	<b>110</b>	
5.	Dibbling of one-year-old coniferous trees on the mounds (PLN 10 x 96 h) and pitting of perennial broadleaf trees (PLN 10 x 117 h)	960	1,170
6.	Replacement of seedlings (coniferous PLN 10 x 23 h, broadleaf - PLN 10 x 28 h, supply – PLN 200/2)	330	380
<b>Total costs of the establishment of a forest culture</b>		<b>6,317</b>	<b>7,208</b>
Payment (70% of investment costs)		4,422	5,045
<b>Proposal for payment rates</b>		<b>4,420</b>	<b>5,040</b>

<sup>4</sup> Unfavourable conditions understood as impediments to the preparation of soil for afforestation as a result of occurrence of successive plants (herbage) or requirements related to the protection of land against erosion.

Table 4. Calculation of payment rates for afforestation of non-agricultural land through planting (artificially) in unfavourable conditions on slopes over 12°

No	Costs	Costs PLN/ha	
		coniferous	broadleaf
1.	Special preparation of soil (average cost) x 1.4 <sup>2)</sup> - manual preparation of 40x40x30 cm mounds (PLN 10 x 291 h), - cultivation of soil on sands susceptible to wind erosion (PLN 10 x 78 h)	<b>2,583</b>	
2.	Seedlings (coniferous 8,000 x PLN 0.32, broadleaf 6,000 x PLN 0.49, biocenotic shrubs 500 x PLN 0.35)	2,560	3,115
3.	Seedlings used for replacement in the second planting the following year (20%) 1,600 x PLN 0.32; 1,200 x PLN 0.49	512	588
4.	Supply and heeling in of seedlings (40 km x PLN 2, PLN 140 – unloading, loading and heeling in) / 2	<b>110</b>	
5.	Dibbling of one-year-old coniferous trees on the mounds (PLN 10 x 96 h) x 1.4 <sup>2)</sup> and pitting of perennial broadleaf trees (PLN 10 x 117 h) x 1.4 <sup>2)</sup>	1,344	1,638
6.	Replacement of seedlings (coniferous PLN 10 x 23 h 1.4 <sup>2)</sup> , broadleaf - PLN 10 x 28 h 1.4 <sup>2)</sup> , supply – PLN 200/2)	422	492
<b>Total costs of the establishment of a forest culture</b>		<b>7,531</b>	<b>8,526</b>
Payment (70% of investment costs)		5,271	5,968
<b>Proposal for payment rates</b>		<b>5,270</b>	<b>5,960</b>

Table 5. Calculation of payment rates for afforestation of non-agricultural land with the use of natural succession in an area with favourable configuration

No	Costs	Costs PLN/ha	
		coniferous	broadleaf
1.	Regulation of the coating or growth of trees from natural succession and selection of clusters intended for further cultivation (PLN 10 x 64 h)	<b>640</b>	
2.	Supplementation seedlings (20%) 1,600 x PLN 0.32; 1,200 x PLN 0.49	512	588
3.	Manual preparation of plates for supplementation (PLN 10 x 70 h)	<b>700</b>	
4.	Supply and heeling in of seedlings (40 km x PLN 2, PLN 140 – unloading, loading and heeling in) / 2	<b>110</b>	
5.	Planting (coniferous PLN 10 x 48 h, broadleaf PLN 10 x 52 h)	480	520
<b>Total costs of the establishment of a forest culture</b>		<b>2,442</b>	<b>2,558</b>
Payment for the remaining areas (70% of investment costs)		1,709	1,790
<b>Proposal for the payment rate</b>		<b>1,700</b>	<b>1,790</b>

Table 6. Calculation of payment rates for afforestation of non-agricultural land with the use of natural succession on slopes over 12°

No	Costs	Costs PLN/ha	
		coniferous	broadleaf
1.	Regulation of the coating or growth of trees from natural succession with selection of clusters intended for further cultivation (PLN 10 x 64 h) x 1.4 <sup>2)</sup>	<b>896</b>	
2.	Supplementation seedlings (20%) 1,600 x PLN 0.32; 1,200 x PLN 0.49	512	588
3.	Manual preparation of plates for supplementation (PLN 10 x 70 h) x 1.4 <sup>2)</sup>	<b>980</b>	
4.	Supply and heeling in of seedlings (40 km x PLN 2, PLN 140 – unloading, loading and heeling in) / 2	<b>110</b>	
5.	Planting (coniferous 10 PLN x 48 h x 1.4 <sup>2)</sup> , broadleaf PLN 10 x 52 h x 1.4 <sup>2)</sup> )	672	728
<b>Total costs of the establishment of a forest culture</b>		<b>3,170</b>	<b>3,302</b>
Payment for the remaining areas (70% of investment costs)		2219	2311
<b>Proposal for payment rates</b>		<b>2,210</b>	<b>2,310</b>

Table 7. Calculation of payment rates for afforestation of agricultural and non-agricultural land with mycorrhized seedlings with a covered root system in an area with favourable configuration

No	Costs	Costs PLN/ha	
		coniferous	broadleaf
1.	Preparation of soil (not always) - ploughing up and cultivating of furrows (PLN 55 x 13.8 h)	<b>759</b>	
2.	Seedlings (coniferous 5,600 x PLN 1.09, broadleaf 4,200 x PLN 0.72, biocenotic shrubs 350 x PLN 0.72)	6,104	3,276
3.	Supply and heeling in of seedlings (40 km x PLN 2, PLN 140 – loading, unloading and heeling in) / 2	<b>110</b>	
4.	Planting (coniferous PLN 10 x 120 h, broadleaf PLN 10 x 180 h)	1,200	1,800
<b>Total costs of the establishment of a forest culture</b>		<b>8,173</b>	<b>5,945</b>
Payment (70% of investment costs)		5,721	4,161
<b>Proposal for payment rates</b>		<b>5,720</b>	<b>4,160</b>

Table 8. Calculation of payment rates for afforestation of agricultural and non-agricultural land with mycorrhized seedlings with a covered root system on slopes over 12°

No	Costs	Costs PLN/ha	
		coniferous	broadleaf
1.	Preparation of soil (not always) x 1.4 <sup>2)</sup> - ploughing up and cultivating of furrows (PLN 55 x 13.8 h)	<b>1,062</b>	
2.	Seedlings (coniferous 5,600 x PLN 1.09, broadleaf 4,200 x PLN 0.72, biocenotic shrubs 350 x PLN 0.72)	6,104	3,276
3.	Supply and heeling in of seedlings (40 km x PLN 2, PLN 140 – loading, unloading and heeling in) / 2	<b>110</b>	
4.	Planting (coniferous PLN 10 x 120 h x 1.4 <sup>2)</sup> , broadleaf PLN 10 x 180 h x 1.4 <sup>2)</sup> )	1,680	2,520
<b>Total costs of the establishment of a forest culture</b>		<b>8,956</b>	<b>6,968</b>
Payment (70% of investment costs)		6,269	4,877
<b>Proposal for payment rates</b>		<b>6,260</b>	<b>4,870</b>

Table 10. Verification of payment rates for cultivation of a forest culture on agricultural land and calculation of payment rates for cultivation of a forest culture established on non-agricultural land in favourable conditions

No	Costs	Costs PLN/ha	
		coniferous	broadleaf
1	1-3-year-old culture: - cutting out of weeds (twice a year, PLN 10 x 40 h) - cultivation of soil around the seedlings (1 operation per 2% of the surface area, PLN 10 x 8h)	<b>480</b>	
2	4-5-year-old culture: - tending fellings (1 operation in mixed cultures PLN 10 x 46 h)	<b>460</b>	
3	Protection of the forest against insects and fungi	<b>27</b>	
4	Protection of the forest against fires	<b>10</b>	
<b>Average cost of forest culture cultivation</b>		<b>977</b>	
<b>Proposal for the payment rate</b>		<b>970</b>	

Table 10. Verification of payment rates for cultivation of a forest culture on slopes over 12°

No	Costs	Costs PLN/ha	
		coniferous	broadleaf
1	1-3-year-old culture: - cutting out of weeds (twice a year, PLN 10 x 40 h) x 1.4 <sup>2)</sup> - cultivation of soil around the seedlings (1 operation per 2% of the surface area, PLN 10 x 8 h) x 1.4 <sup>2)</sup>	<b>672</b>	
2	4-5-year-old culture: - tending fellings (1 operation in mixed cultures PLN 10 x 46 h) x 1.4 <sup>2)</sup>	<b>644</b>	
3	Protection of the forest against insects and fungi x 1.4 <sup>2)</sup>	<b>38</b>	
4	Protection of the forest against fires x 1.4 <sup>2)</sup>	<b>14</b>	
<b>Average cost of forest culture cultivation</b>		<b>1,368</b>	
<b>Proposal for the payment rate</b>		<b>1,360</b>	

Table 11. Calculation of payment rates for cultivation of a forest culture established on non-agricultural land in unfavourable conditions<sup>4)</sup> in an area with favourable configuration

No	Costs	Costs PLN/ha	
		coniferous	broadleaf
1	1-3-year-old culture: - cutting out of weeds (twice a year, PLN 10 x 40 h) x 1.3 <sup>5)</sup> - cultivation of soil around the seedlings (1 operation per 2% of the surface area, PLN 10 x 8 h) x 1.3 <sup>5)</sup>	<b>624</b>	
2	4-5-year-old culture: - tending fellings (1 operation in mixed cultures PLN 10 x 46 h) x 1.3 <sup>5)</sup>	793	
3	Protection of the forest against insects and fungi x 1.3 <sup>5)</sup>	35	
4	Protection of the forest against fires x 1.3 <sup>5)</sup>	13	
<b>Average cost of forest culture cultivation</b>		<b>1,465</b>	
<b>Proposal for the payment rate</b>		<b>1,460</b>	

<sup>5)</sup> Conversion factor used for payment rates for activities performed in unfavourable conditions.

Table 12. Calculation of payment rates for cultivation of a forest culture established on non-agricultural land in unfavourable conditions on slopes over 12°

No	Costs	Costs PLN/ha	
		coniferous	broadleaf
1	1-3-year old culture x 1.4 <sup>2)</sup> : - cutting out of weeds (twice a year, PLN 10 x 40 h) x 1.3 <sup>5)</sup> - cultivation of soil around the seedlings (1 operation per 2% of the surface area, PLN 10 x 8 h) x 1.3 <sup>5)</sup>	<b>873</b>	
2	4-5-year-old culture x 1.4 <sup>2)</sup> : - tending fellings (1 operation in mixed cultures PLN 10 x 61 h) x 1.3 <sup>5)</sup>	1,110	
3	Protection of the forest against insects and fungi x 1.3 <sup>5)</sup> x 1.4 <sup>2)</sup>	49	
4	Protection of the forest against fires x 1.3 <sup>5)</sup> x 1.4 <sup>2)</sup>	18	
<b>Average cost of forest culture cultivation</b>		<b>2,051</b>	
<b>Proposal for the payment rate</b>		<b>2,050</b>	

Table 13. Cultivation of a forest culture established on non-agricultural land with the use of natural succession in an area with favourable configuration

No	Costs	Costs PLN/ha
1	1-3-year-old culture: - further gradual thinning of self-seeding (PLN 10 x 58 h)	580
2	4-5-year-old culture: - tending fellings (1 operation in cultures stemming from natural reforestation PLN 10 x 64h)	640
3	Protection of the forest against insects and fungi	27
4	Protection of the forest against fires	10
<b>Average cost of forest culture cultivation</b>		<b>1,257</b>
<b>Proposal for the payment rate</b>		<b>1,250</b>

Table 14. Cultivation of a forest culture established on non-agricultural land with the use of natural succession on slopes over 12°

No	Costs	Costs PLN/ha
1	1-3-year-old culture: - further gradual thinning of self-seeding (PLN 10 x 58 h) x 1.4 <sup>2)</sup>	812
2	4-5-year-old culture: - tending fellings (1 operation in cultures stemming from natural reforestation PLN 10 x 64h) x 1.4 <sup>2)</sup>	896
3	Protection of the forest against insects and fungi x 1.4 <sup>2)</sup>	37
4	Protection of the forest against fires x 1.4 <sup>2)</sup>	14
<b>Average cost of forest culture cultivation</b>		<b>1,759</b>
<b>Proposal for the payment rate</b>		<b>1,750</b>

Table 15 Protection of forest cultures against animals

No	Costs	Costs PLN/ha
1.	Putting up of a 2-metre-high wire fence: - labour PLN 10 x 100 h - materials	1,000 2,700
<b>Total costs</b>		<b>3,700</b>
Payment (70% of investment costs)		2590
<b>Proposal for the payment rate</b>		<b>2,590</b>
<b>Cost estimated as an alternative for putting up one linear meter of a two-meter-high wire fence</b>		<b>6.5</b>
2.	Protection with repellents: - labour PLN 10 x 19.6 h - repellents	169 110
<b>Total costs</b>		<b>279</b>
Payment (70% of investment costs)		<b>195</b>
<b>Proposal for the payment rate</b>		<b>190</b>
3.	Protection by means of three stakes: - labour PLN 10 x 72 h - materials	720 280
<b>Total costs</b>		<b>1,000</b>
Payment (70% of investment costs)		<b>700</b>
<b>Proposal for the payment rate</b>		<b>700</b>
4.	Protection of cultures by means of sheep wool: - labour PLN 10 x 39 h - materials	390 10
<b>Total costs</b>		<b>400</b>
Payment (70% of investment costs)		<b>280</b>
<b>Proposal for the payment rate</b>		<b>280</b>

Table 16. Afforestation bonus for farmers

<b>No</b>	<b>Costs</b>	<b>Costs PLN/ha</b>
1	Lost gross margin for land of poor quality (bonitation factor up to 0.85)	1,029
2	Average gross margin lost	560
<b>Total costs lost</b>		<b>1,589</b>
<b>Proposal for the payment rate</b>		<b>1,580</b>