

# : Willingness of Private Forest Owners for Business Cooperation in Slovenia: Current State and Way Forward

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## ■ ABSTRACT

The business cooperation of private forest owners has been recognized in many countries with prevailing private forest ownership, as a key instrument to support sustainable management. This study identifies the willingness of private forest owners for business cooperation between each other and with forest service providers or forest managers. In 2022, a survey of randomly selected private forest owners was conducted. The results show that private forest owners are willing for business cooperation, however, none of the existing business forms were considered as very appropriate. As the most appropriate forms of business cooperation between owners were identified producer groups under CAP and various short-term business cooperation forms with forest service providers or forest managers. To motivate private forest owners for business cooperation, it is important to identify the profile of owners who are willing for business cooperation, determine actors that will promote such cooperation and ensure appropriate policy instruments.

## ■ KEYWORDS

**Private forest owners, business cooperation, forest service providers, forest management activities**

## ■ 1 INTRODUCTION

In Europe where private forest ownership prevails, explaining and predicting the management behaviour and practices of private forest owners (PFOs) is an increasingly important topic in forest policy and research arenas (UNECE/FAO, 2020). This is especially true, as management objectives of PFOs have changed considerably over the last two decades mainly due to demographic, economic, and social changes, such as urbanization of lifestyles, disengagement from agriculture, economic restructuring (Weiss et al., 2019). These changes have resulted in PFOs lacking sufficient knowledge and experiences in forest management which is reflected in the underutilization of forest resources.

In Slovenia, where PFOs control a large part of forest resources (77.0% of forests are privately owned) (SFS, 2023), the management of these forests is far from optimal (only 64 % of planned timber is harvested in private forests and less than half of silvicultural work is carried out in accordance with forest management plans) (SFS, 2023), due to the diversity of ownership and tenure (Pezdevšek Malovrh et al., 2022).

The governments, not only in Slovenia, but also across the world, have responded to that problem related to private forest management by different policy instruments. Among them, they have recognized cooperation and joint action between PFOs and with forest service providers or forest managers as a key instrument to support sustainable forest management and to implement policy objectives (Sarvašová et al., 2015; Pöllumäe et al., 2016; UNECE/FAO, 2020). In Slovenia, different forms of voluntary interest (i.e., forest owners associations) and business cooperation (i.e., cooperatives, PFOs companies, producer groups) exists, but only a small percentage of PFOs cooperate (Pezdevšek Malovrh et al., 2022). Accordingly, to Aurenhammer et al. (2017), in Slovenia voluntary forms of PFOs cooperation generally lack the human capacity to transfer information and resources. Therefore, more knowledge is needed about the intention of PFOs to manage their forests within different organizational forms or about their willingness for business cooperation.

The aim of this study is therefore, to identify PFOs willingness for business cooperation between each other or with forest service providers or forest managers to perform forest management activities or sell timber to the market in order to improve private forest management efficiency. Moreover, this study also explains how certain factors, such as property characteristics, forest management activities and previous experiences with forest service providers and socio-demographic characteristics of PFOs, influence their willingness for business cooperation.

## ■ 2 METHODS

In order to collect data, a structured questionnaire was developed within the project “*Efficient management of private forests to support wood mobilization – CRP V4-2013*”. The questionnaire consisted of 34 questions, divided into five sections. Only data from the fifth section were analysed in this study. In 2022 (March-April), an online survey of randomly selected households throughout Slovenia was conducted. In accordance with the sampling procedure, the basis of the sample was the gross sample; all households, regardless of forest ownership, for which representativeness was ensured by quotas according to region and settlement type. In addition, there were so-called soft quotas

based on the age of the respondents, which ensured that the online survey did not only include a younger population. A total of 1,515 households owning a forest took part in the survey. The collected data were processed in SPSS, version 24 (IBM, 2021). The data were analysed using frequency distribution, mean values/mode and non-parametric tests (Mann-Whitney U test and Kruskal Wallis test).

## ■ 3 RESULTS

The sample represents 1,515 surveyed PFOs, most of whom are male (54.6%), mainly with high school education (50.0%) or university degree (45.4%), with an average age of 54 years. 55.7 % of PFOs live in a small village with less than 3000 inhabitants. The surveyed PFOs are mainly employed (53.6%) or are retired (45.3%). The average size of the forest property is 7.47 ha (65.4% of PFOs have properties smaller than 5 ha).

The surveyed PFOs have shown a willingness for business cooperation with other PFOs (mean 3.38, mode 4), with 51.6% of PFOs willing and 30.1% indecisive. In addition, the results show that age ( $U=219,673.500$ ,  $p=0.032$ ), forest property size ( $U=145,435.000$ ,  $p=0.020$ ) and implementation of forest management activities ( $U=61,859.000$ ,  $p=0.033$ ) have a significant influence on PFOs willingness for business cooperation with other PFOs, while the intensity of forest management ( $K-W H=0.956$ ,  $p=0.620$ ) and previous experience with forest service providers ( $U=170,368.500$ ,  $p=0.109$ ) have no significant influence. Younger PFOs (< 50 years), who own and manage more than 5 ha of forest are more willing for such business cooperation.

PFOs have different motives when it comes to cooperation, therefore various forms of PFOs cooperation were established in Slovenia – both interest- and business-one. The results of the survey showed that none of the existing forms of business cooperation between PFOs is considered as fully appropriate for PFOs. Producer groups under the CAP were rated as the most appropriate (mean 3.26<sup>1</sup>, mode 4), followed by PFO-owned companies (mean 3.13, mode 4) and cooperatives (mean 3.10, mode 4). Machinery rings (mean 3.10, mode 3) were rated as partially appropriate by respondents. As unappropriated forms of business cooperation were recognized public-private partnerships (mean 2.90, mode 3). In addition, we were also interested to know which are the reasons why PFOs would choose to cooperate with other PFOs (Table 1). The results show that differences in mean values between reasons were minimal, but all reasons were rated as important. The surveyed PFOs emphasised that they are willing for business cooperation with other PFOs if they would get a better price for forest services (mean 3.97), higher timber price (mean 3.96) or if they would get better information on business cooperation and would know some good practice examples.

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<sup>1</sup> Appropriateness of the existing forms of business cooperation were evaluated on the 5-point Likert scale (1 – very inappropriate to 5- very appropriate)

**Table 1. Average values of reasons for business cooperation with other PFOs**

Reasons	Average values <sup>2</sup>
If I would get better prices for forest services	3.97
If I would get higher timber prices	3.96
If I would get better information on business cooperation and would know some good practice examples	3.87
If I would have the possibility to control the sale of timber	3.84
If I would be in position to influence business decisions	3.82
If I would own larger forest property	3.78
If I would manage my forest more often or every year	3.76

In addition to business cooperation between PFOs, the cooperation between PFOs and forest service providers or forest managers is also important, especially for owners with smaller forest properties or the ones without knowledge, for more efficient private forest management. The results showed that PFOs are willing for business cooperation with forest service providers or forest managers (mean 3.47, mode 4), with 56.9% of respondents willing and 26.8% indecisive. In addition, the results show that forest property size ( $U=147,174.000$ ,  $p=0.020$ ) and previous cooperation with forest service providers ( $U=143,591.000$ ,  $p=0.000$ ) influence PFOs' willingness to cooperate with forest service providers or forest managers, while age of the PFOs ( $U=230,164.000$ ,  $p=0.294$ ), the implementation of forest management activities ( $U=67,004.000$ ,  $p=0.387$ ) and the intensity of forest management ( $K-W H=0.545$ ,  $p=0.761$ ) have no significant influence. PFOs that own more than 5 ha of forest and have previous experience with forest service providers are more willing for such business cooperation.

PFOs have different needs related to forest management, which depend on their forest property size, intensity of forest management and their capacity to carry out forest management activities. Therefore, PFOs may entrust forest management to forest service providers or forest managers, through various long-term or short-term business cooperation. The results of the survey showed that none of the analysed existing forms of business cooperation between PFOs and forest service providers or forest managers is considered as fully appropriate for respondents. Short-term business cooperation, such as timber harvesting and skidding services (mean 3.401, mode 4), timber and wood chips transportation (mean 3.33, mode 4) and buying timber on the forest road (mean 3.30, mode 4) were recognized as the most appropriate one, followed by buying timber on the stump (mean 3.12; mode 4) and hiring forest service providers for silvicultural and protection work (mean 3.04; mode 4). Based on the results, less appropriate forms of business cooperation with forest service providers or forest managers are long-term forest management agreements, such as forest leases or forest management (mean 2.49, mode 2, respectively). In addition, we were also interested to know which are the reasons why PFOs would choose to cooperate with forest service providers or forest

<sup>2</sup> The reasons were evaluated on the 5-point Likert scale (1 – very unimportant to 5- very important).

managers (Table 2). The results show that differences in mean values between reasons were minimal, but all reasons were rated as important. Surveyed PFOs emphasised that they are willing for business cooperation with forest service providers or forest managers if they would pay all agreed financial obligations to the PFO within an agreed timeframe (mean 4.21) and if PFOs can cancel the contract at any time without financial consequences in case of inappropriate forest management (mean 4.13), if forest service providers/forest managers would meet agreed or contractual deadlines and if they would carry out the forest work at high standards, considering sustainable forest management.

**Table 2. Average values of reasons for business cooperation with forest service providers or forest managers**

Reasons	Average values <sup>2</sup>
If forest service providers/forest managers would pay all agreed financial obligations to the PFOs within an agreed timeframe	4.21
If the contract could be cancelled at any time in the event of inappropriate forest management, without financial consequences	4.13
If forest service providers/forest managers would meet agreed or contractual deadlines	4.12
If forest service providers/forest managers would carry out the forest work at a high standard, considering sustainable forest management	4.12
If forest service providers/forest managers would provide sufficient information (e.g., work progress, timelines, forest service prices)	4.04
If forest service providers/forest managers would offer a comprehensive forest management service	3.95
If neighbours/relatives/other PFOs would be satisfied with forest service provider	3.91
If forest service provider/forest managers would contact me personally and offer me their services	3.87

## ■ 4 DISCUSSION AND CONCLUSION

Private forests in Slovenia are characterized as small-scaled and fragmented, owned by a large number of owners, who are generally elder and independent of forest income as well as lacking the knowledge and information on forest management. To support the sustainable management of private forests and wood mobilization in Slovenia, different organizational models of PFOs cooperation were established (Pezdevšek Malovrh et al., 2022; Iveta and Pezdevšek Malovrh, 2021). Although some experience of PFOs business cooperation between PFOs or with forest service providers/forest managers already exists in Slovenia, previous studies showed that such practices are not yet very common and that mistrust exists in such cooperation (Pezdevšek Malovrh and Laktič, 2017; Iveta and Pezdevšek Malovrh, 2021). The willingness of surveyed PFOs to engage in business cooperation with other PFOs or with forest service providers/

forest managers exists. However, interest exists among PFOs who already manage their forest, who have previous experience with forest service providers, who are younger than 50 years and own more than 5 ha of forest, which is in line with previous research (Pezdevšek Malovrh et al., 2022; Aurenhammer et al., 2017). As the most appropriate forms of business cooperation were recognized producer groups under CAP (for business cooperation between PFOs) and various short-term business cooperation forms, such as timber harvesting and skidding services, timber and wood chips transport and buying timber on the forest road (for business cooperation between PFOs and forest service providers/forest managers). Long-term business cooperation forms, which are more attractive from the cost-effectiveness point of view for the forest service providers or forest managers, have been recognized as less appropriate among surveyed PFOs. Considering that business cooperation between PFOs and with forest service providers or forest managers is recognized as a key instrument to increase the efficiency of private forest management (Fisher et al., 2019) and that the interest for such cooperation among PFOs exists in Slovenia, more attention should be paid to promote different forms of business cooperation at the local level through various campaigns and incentive measures which shown to be one of the most effective ways to encourage PFOs (Wilkes-Allemand et al., 2021).

In order to initiate business cooperation between PFOs and with forest service providers or forest managers, it would be necessary that forest policy actors decide who will be the key actors (e.g., the public forest administration, the Chamber of Agriculture and Forestry, the Association of private forest owners or some private actors) and what will be their role in promoting and informing PFOs about business cooperation. The decision about an appropriate actor can be made based on existing institutional and legal frameworks or previous studies that have shown that in many cases, extension officers, local wood purchasers, and family members are the main source of normative pressure influencing the decision-making process of PFOs regarding forest management and their willingness to cooperate (Feliciano et al., 2017; Upton et al., 2019). Furthermore, it is important to establish a connection between potential business partners (i.e., PFOs and forest service providers or forest managers) via online platforms, such as MojGozdar.si (Triplat and Krajnc, 2021) or similar communication channels. However, it is important to include trustworthy and reliable PFOs, forest service providers or forest managers in the business model, who take care of proper relations, make offers with clear economic indicators, and perform quality work in the forest. This will build trust between PFOs for business cooperation.

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