

## Article

# Farmers' Attitudes and Perceptions and the Effects of the Grain for Green Project in China: A Case Study in the Loess Plateau

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**Abstract:** The Grain for Green Project (GGP) aims to protect and improve the ecological environment, end farming on sloping farmland, and plant trees and restore forest vegetation. China's GGP has been widely implemented, but its impact on the environment is rarely evaluated from farmers' perspectives. This study took place in Zhidan and Yanchang Counties, Shaanxi Province. Farmers' attitudes towards the GGP were investigated through semi-structured interviews to understand their perceptions of changes in ecosystem services and their level of ecological awareness, as well as analyzing which factors had the greatest impact on them. Our results indicate that some farmers are not satisfied with the GGP and are unwilling to participate in future GGPs, which is not only due to the dissatisfaction with subsidies offered but also because the needs of the farmers have been ignored. From the perspective of farmers, the GGP has greatly reduced soil erosion and air pollution but has had no effect on improving water quality and protecting biodiversity. More male farmers are willing to participate, and farmers with higher levels of education are more satisfied with the GGP. We also found that the level of understanding of ecological cognition affected farmers' attitudes, and farmers with different levels of knowledge differ in their willingness to participate. Our research found that many farmers were dissatisfied with the GGP. To improve this situation, it is necessary to improve the ecological awareness of farmers. At the same time, policy makers should also further understand the needs of farmers in order to make reasonable management strategies.

**Keywords:** biodiversity; ecological perception; participation willingness; satisfaction



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## 1. Introduction

### 1.1. Grain for Green Project

The hope is that returning farmland to forest or artificial afforestation projects will reverse forest loss and degradation trends, provide wood products for local people, improve hydrological regulation and nutrient cycling, and support more biodiversity, as well as being an important way of mitigating climate change [1].

The Grain for Green Project (GGP) aims to protect and improve the ecological environment, to stop farming in a planned and step-by-step manner on sloping farmland that is prone to soil erosion, and to plant trees and restore forest vegetation in accordance with the principle of suitable land and trees. This policy is the earliest, largest, most invested in, and most widely involved ecological restoration project and ecological compensation project in the history of China's forestry [2]. Other governments also have implemented similar policies, such as the Conservation Reserve Program in the USA, the Permanent Cover Program in Canada, the Common Agricultural Policy in the EU, and the Farmland, Water and Environmental Conservation Improvement Scheme in Japan [3]. In the past few decades, governments of various countries have taken the measure of GGP as an important ecological restoration strategy, which has been promoted and implemented in various places [4].

Although a substantial amount of money has been spent on the GGP, there is a lack of data showing the success of reforestation projects in achieving ecological or socioeconomic benefits [5]. Most assessments of the success of afforestation focus only on reaching the target planting area. Most of the forests created due to this project are used to harvest wood, grow trees, and other cash crops, with other ecological service functions only considered as secondary [6].

Local farmers are highly sensitive to environmental changes. Although they rely on intuition, their judgments can still be used as an important indicator for evaluating ecological changes as beneficial to their environment, and what they offer [7]. However, few studies have previously evaluated the project benefits from the perspective of farmers. In China, the GGP is almost fully government-led and rarely considers farmers' opinions during project implementation. Many projects have been implemented for more than 20 years locally, but very few studies have investigated farmers' feelings and their satisfaction level [8,9]. This study evaluates farmers' attitudes towards the GGP and their perception of how it has affected the ecology in their areas. It aims to provide an important foundation for future participatory planning of GGPs. Understanding these factors will also aid implementation of other agricultural environmental protection measures in the future.

### *1.2. Farmers' Perceptions and Attitudes to GGPs*

As the main stakeholders of the GGP, farmers are the main stewards of the land. They are both the beneficiaries of the project and those who are affected by any negative consequences. The farmers' perception of the GGP directly affects their behavior, which will have a knock-on effect on the process of returning farmland to the forests [10]. In recent years, the Chinese government has begun to pay attention to this issue. The government has also begun to attach importance to the opinions of farmers in the implementation of planning and land remediation projects, but limited research has been conducted on the needs and wishes of farmers [11]. Compared with farmers in Europe and the USA, Chinese farmers' knowledge of ecological and environmental protection is relatively low, and their understanding of land consolidation, especially ecological land consolidation, often differs from that of planners [12]. The planning ideas are also not conducive to the development and continuation of ecological land improvement projects.

Although China's GGP is led by the government, local farmers implement it. First, farmers need to agree to the GGP implementation; as the farmers, who are often poor, receive cash subsidies, they may not care whether the project is helpful to the environment [13]. In the past few decades, China has relied on greater subsidies to implement land policies. If this model continues into the future, farmers' subsidies will continue to be increased [14], resulting in a heavy financial burden on the government. In addition, farmers' attitudes determine the success of project implementation, as well as its subsequent management and maintenance [15]. Currently, subsidies are no longer provided in many regions; hence, farmers do not care about the upkeep of the trees. Therefore, an understanding of the needs and attitudes of local farmers is crucial in formulating future land policies.

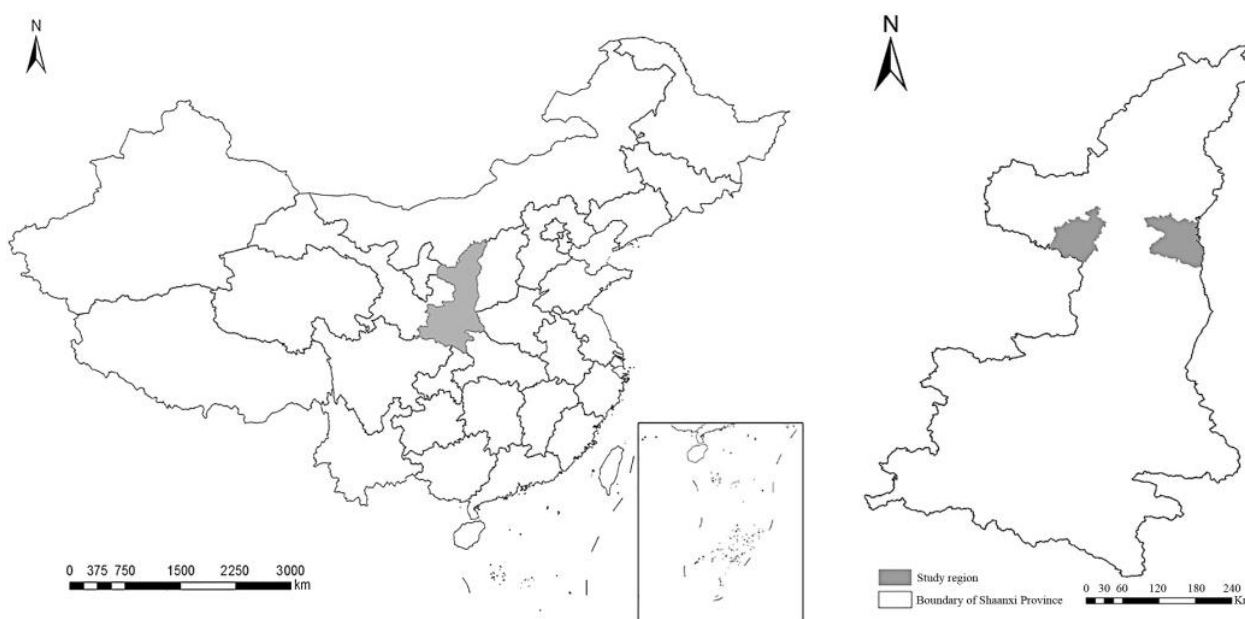
It is necessary to understand the multitude of factors that affect the attitudes of farmers towards land-use policies [11]. These factors not only differ from person to person (such as age and sex), but many other factors including farmers' cognitive level, life experience, etc., also matter. Many previous studies have concentrated on only one or two main impacts. In contrast, this study investigates local farmers' perceptions and responses to the GGP by analyzing multiple aspects of perception, including their feelings about and perceptions of ecology to help understand what and how these factors affect farmers' satisfaction and willingness to participate in the GGP. We hypothesized that (i) some farmers may not be satisfied with GGP and would be unwilling to participate in future GGP; (ii) farmers' ecological knowledge may still be at a low level. They were satisfied with the overall positive changes in the ecological environment, but they may not care about specific

ecological services; and (iii) the knowledge level of farmers has an impact on their attitudes and willingness to participate.

## 2. Materials and Methods

### 2.1. Study Region

Data were collected from five villages in Zhidan and Yanchang counties, Yan'an City, Shaanxi province, China (Figure 1). Both Zhidan County ( $36^{\circ}21'–37^{\circ}11' \text{ N}$ ,  $108^{\circ}11'–109^{\circ}3' \text{ E}$ ) and Yanchang County ( $36^{\circ}14'–36^{\circ}46' \text{ N}$ ,  $109^{\circ}33'–110^{\circ}30' \text{ E}$ ) are in the northern part of Shaanxi Province and belong to the Loess Plateau region of the Yellow River Basin. Both counties have a warm temperate arid continental monsoon climate, with an annual average temperature of  $6–13^{\circ}\text{C}$ .



**Figure 1.** Location of study region.

Both counties began restoring farmland to forests in 1999. The reforestation area in both counties exceeded 56,000 ha. The total subsidy per hectare in this area for restoring farmland to natural forests was CNY 30,750 and to commercial forests is CNY 19,500. The subsidy periods were 16 and 10 years, respectively. A new cycle of returning farmland to forest and grassland was launched in 2014, with the scope limited to non-basic sloping farmland above 25 degrees in desert areas (Data Sources: <http://www.forestry.gov.cn/>, accessed on 1 March 2022).

### 2.2. Data Collection

These two counties chosen for the study are about the same distance from the nearby central city (Yan'an City), and their economy and population are at an average level compared to other regions in northern Shaanxi province. Therefore, these two counties provide a typical representative sample. The survey was conducted in September and October 2020. In each county, eight villages that implemented the project of returning farmland to forest were randomly selected. In each village, 15–30 households were randomly selected and were given 262 valid questionnaires, and semi-structured interviews were conducted. Unlike questionnaires handed directly to the interviewee, this method requires the interviewer to interact with an individual, which takes longer, but the advantage is that the interviewer can explain questions to the farmers. The atmosphere is more relaxed, and the results obtained are more reliable [16].

The questionnaire was split into five sections: farmers' personal qualities, farmers' satisfaction and reasons for accepting the GGP, changes experienced by farmers after GGP

implementation, farmers' awareness of ecology and environmental protection, and farmers' willingness to participate in and attitude toward GGP in the future (see Appendix A). The interviews were conducted face-to-face, and the interviewer was able to be flexible in the way questions were asked and their order, depending on the actual situation during the interview.

### 2.3. Statistical Analysis

Statistical analysis was performed using the software IBM® SPSS 24. To explore the factors that affect farmers' satisfaction and willingness to participate, we used descriptive statistics and an ordered probit model. The independent variables in our analytical model included three sections: farmers' personal characteristics, farmers' perception of change, and farmers' understanding of ecological processes (see Appendix A for a description of our variables in detail).

Dependent variables were measured using a semantic differential three-point scale, where 1 = No, 2 = Neutral, and 3 = Yes. Dependent variables included farmers' satisfaction with the GGP, farmers' level of concern about whether GGPs should continue to be implemented in the future, farmers' willingness to participate in GGPs in the future, and farmers' willingness to participate in GGPs on abandoned farmland without subsidies.

## 3. Results

A total of 262 farmers were interviewed, and the basic characteristics of the respondents are summarized in Table 1. The average age of the respondents was 51.4. The ratio of male to female respondents was approximately 1:2. Many young men in the villages work elsewhere and only return home for the Spring Festival. Of the respondents, 21% had no education, and 41% had only elementary school education. This is also because people with higher education tend to work in the city instead of returning to the countryside. More than 62% of the respondents had an annual personal income of less than CNY 10,000. Due to their low incomes, few were full-time farmers. Many farmers supplemented their incomes by working elsewhere, and even the farmers who stayed in the village (respondents) had part-time jobs.

**Table 1.** Personal characteristics of respondents.

Personal Characteristics	Options	Number	Percentage
Age	16–30	24	9%
	31–50	93	35%
	51–70	119	45%
	>70	26	10%
Sex	Female	177	68%
	Male	85	32%
Education	Uneducated	54	21%
	Primary school	107	41%
	Middle school	87	33%
	High school	8	3%
	Bachelor degree and above	6	2%
Personal annual income	<5000	54	21%
	5000–10,000	107	41%
	10,000–30,000	86	33%
	>30,000	15	6%
Main source of income (Occupation)	Farm	60	23%
	Migrant work	55	21%
	Informal work	90	34%
	Other	57	22%

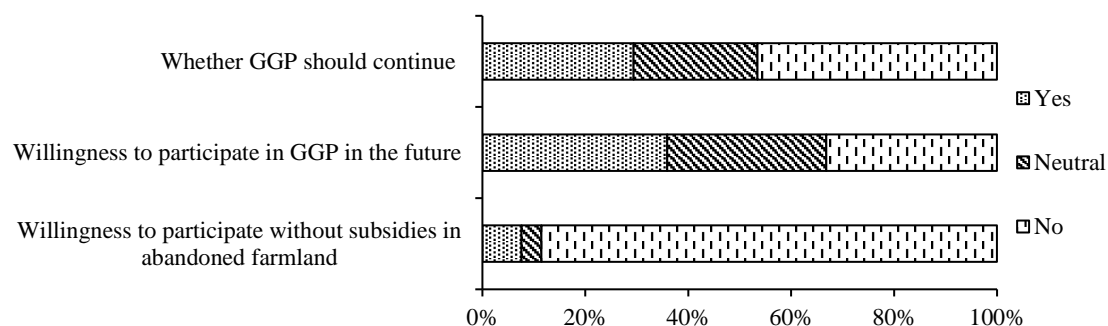
### 3.1. Farmers' Attitudes towards the Rural Agricultural Grain for Green Project

More than half of the farmers (52%) expressed their satisfaction with the project (Table 2). Many of these expressed satisfaction because, after the implementation of the project, there was less flooding, and they felt that the environment had improved. Another important reason for their satisfaction was due to the subsidies they received after allowing their cultivated land to be reforested. As they no longer needed to cultivate the land, they could go to cities to work, so the project increased their incomes. There were three main reasons for 34% of the farmers being dissatisfied: the reforested land was too dense, farmers still preferred to cultivate the land, and the subsidy was insufficient. Fourteen percent of the farmers did not give a clear reason, and only a few of them did not appear to care at all. In fact, most farmers were cautious and unwilling to provide clear answers.

**Table 2.** Farmers' satisfaction and reasons for the Grain for Green project.

Attitude	Reason	Number
Satisfied (136)	I can go out to work and live in the city	78
	The environment is getting better	101
	No need to worry about flash floods anymore	113
	My income has increased	18
	Other reasons	5
Not satisfied (90)	Woodland area is too large	19
	Woodland too dense	61
	Still enjoy farming	58
	The subsidy is insufficient	40
	Other reasons	7
Neutral (36)	Do not know	17
	Do not care	25
	Prefer not to say	4

The majority of farmers (47%) did not agree to with returning farmland to forests (Figure 2). When asked about their willingness to participate in the future, the percentage obtained was relatively close (36% agreed and 33% disagreed). For these two questions, 24% and 30% of the farmers were neutral, with the main reason being whether the new round of subsidies for the GGP would be sufficient. Many farmers have abandoned their farmland, some of which has been abandoned for more than 10 years. However, when asked if they were willing to allocate this land at no charge to the GGP, nearly 90% disagreed. They believed that participating in the GGP required hard work; therefore, they should be paid. If there were no subsidy, they would rather leave the farmland barren.



**Figure 2.** Farmers' willingness to participate in the GGP in the future.

### 3.2. The Effect of GGP Implementation from the Perspective of Farmers

We tested the farmers' understanding of ecological processes and questioned them on the following four categories (The description of specific viewpoints is shown in Appendix A): (1) believe the GGP is beneficial; (2) everyone is responsible; (3) everyone benefits; (4) protection of other living things is important. On these four categories,

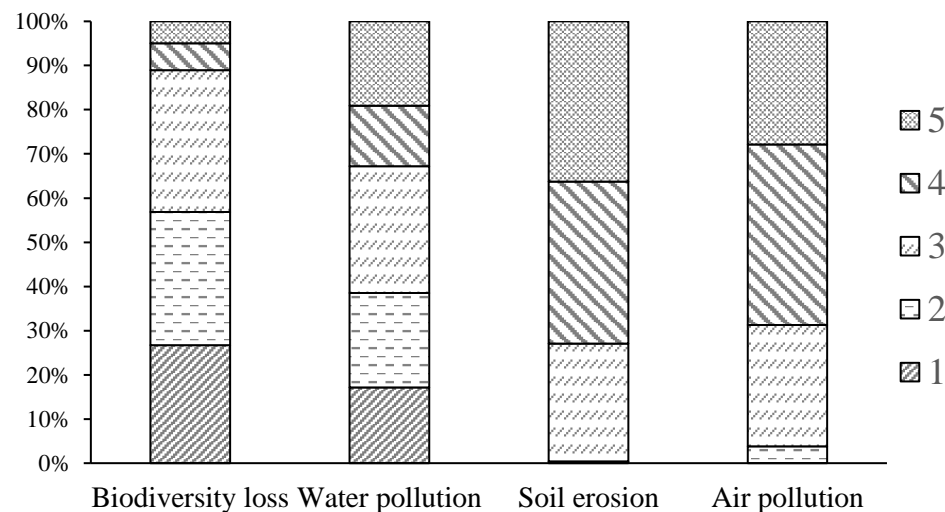
the overall scoring was positive (Table 3) with most farmers agreeing with these views. Among them, on the question of whether farmers believe that the GGP helps protect the environment, the score was high. The lowest score was for the question of whether farmers believe that the GGP benefits everyone. Some farmers disagree with this view, believing that the project only benefits local residents and has no impact on residents in other areas.

**Table 3.** Farmers' awareness of ecology and environmental protection.

	Strongly Disagree (−2)	Disagree (−1)	Neutral (0)	Agree (1)	Strongly Agree (2)	Average Score
Believe the GGP to be beneficial	19	3	45	78	117	1.03
Everyone is responsible	28	16	49	79	90	0.71
Everyone benefits	43	37	21	61	100	0.53
Protect other living things	6	17	75	102	62	0.75

Note: Believe the GGP to be beneficial: the project of returning farmland to forest is to protect the environment. Everyone is responsible: each of us has the responsibility to protect the environment. Everyone benefits: everyone can benefit from the project (not subsidized). Protect other living things: we should also protect other living things.

Most farmers believe that after the implementation of the GGP, soil erosion and air pollution problems were reduced (Figure 3). A total of 73% and 69% of the respondents, respectively, provided positive comments on these two ecological functions. However, for the two functions of water pollution and biodiversity loss, 38% and 57% of the respondents, respectively, provided negative comments. In all four questions, approximately 30% of the respondents maintained a neutral attitude. After our explanation, most farmers said they understood the problem but still claimed that they did not care whether these functions were improved.



**Figure 3.** Farmers' perception of the ecological benefits of the GGP (1 = much worse, 2 = worse, 3 = no change, 4 = improved, 5 = greatly improved).

### 3.3. How Farmers' Ecological Cognition, Perception, and Personal Characteristics Affect Their Attitude

The results of the ordered probit analysis of farmers' attitudes are presented in Table 4. Our results show that sex affected farmers' willingness to participate. Generally, men's willingness to participate in future GGPs was higher. The higher the level of education, the more satisfied they were with the GGP. No obvious pattern was found for other personal characteristics. Soil erosion and biodiversity improvement significantly affected farmers' satisfaction with the GGP. The improvement of biodiversity not only affected their satisfaction but also affects farmers' willingness to participate on multiple levels. In contrast, the reduction in air and water pollution levels did not affect farmers' attitudes. All four categories of ecological cognition of the GGP were significantly correlated with farmers' satisfaction. Not surprisingly, farmers who thought that the GGP was beneficial



were also more willing to participate in future projects but were not willing to participate if there was no subsidy (even if the farmland was already unused). However, farmers who believed that other living things should also be protected were willing to give up abandoned farmland to GGP for free.

**Table 4.** The relationship between farmers' satisfaction, attitude, willingness to participate, and personal characteristics, change perception, and ecological cognition.

		Satisfaction	Whether It Should Continue	Participation Willingness	Participation Willingness without Subsidy
Personal characteristics	Age	0.826	−1.531	0.164	−0.781
	Sex	1.201	−0.344	<b>1.784 *</b>	<b>1.974 *</b>
	Education	<b>3.546 ***</b>	−0.713	1.133	−0.996
	Annual income	1.007	1.263	−1.326	−0.472
	Occupation	0.103	−0.460	−0.113	0.238
Change perception	Biodiversity loss	<b>1.995 *</b>	<b>2.464 **</b>	<b>1.847 *</b>	<b>1.941 *</b>
	Water pollution	−0.310	0.525	0.367	0.958
	Soil erosion	<b>2.894 **</b>	0.725	0.655	0.605
	Air pollution	1.514	0.750	0.552	0.446
Ecological cognition	Believed the GGP to be beneficial	<b>2.686 **</b>	<b>2.387 **</b>	<b>1.977 *</b>	0.915
	Everyone is responsible	<b>1.589 *</b>	0.130	0.412	0.408
	Everyone benefits	<b>1.898 *</b>	0.743	−0.126	0.180
	Protect other living things	<b>1.695 *</b>	0.805	0.756	<b>1.762 *</b>

Note: The t-values are listed based on Ordered Probit Analysis. \* indicates the statistical significance ( $p < 0.05$  \*,  $p < 0.01$  \*\*, and  $p < 0.001$  \*\*\*) of estimated parameters. All significant relationships are marked in bold.

## 4. Discussion

### 4.1. Farmers' Dissatisfaction

Previous studies have revealed that most farmers are satisfied with this type of environmentally friendly land policy [11,17]. However, our results showed that only 52% of farmers were satisfied with the GGP. In this study, we used semi-structured interviews, which did make it easier for farmers to express their true feelings. Many farmers expressed that they were satisfied with the GGP at the beginning of the interview, but as the dialogue deepened, many revealed that they were actually dissatisfied. There were also many farmers, especially the elderly, who believed that the reforested areas were too dense. In this region, the winters are extremely cold, and people generally dislike cold and humid air and find that the dense woodland blocks out the sun. This was the main reason for dissatisfaction. In addition, farmers said that they were very familiar with and enjoy farming and many farmers expressed a strong desire to continue farming with this desire being more out of habit and interest than to make money. These facts suggest that it is necessary to understand the real needs of farmers, and these easily overlooked details are also important factors that affect farmers' levels of satisfaction [18]. Limited by funds and time, the number of samples in our study case was relatively small, and future research can conduct research on more farmers on a larger scale.

In the preliminary survey, we found that farmers were affected by the level of subsidies offered. Once this issue was raised, many farmers were attentive or kept asking questions about subsidies. We hoped to obtain the real attitudes of farmers about more aspects, so we deliberately avoided mentioning this issue during the interview. Nevertheless, a considerable number of farmers still said that the reason for their dissatisfaction was that the subsidy was not enough [19]. The subsidy issue also affects farmers' willingness to participate in future GGPs (Figure 2). Many farmers would rather leave the land fallow than offer it to the GGP free of charge. Compared with whether they were satisfied, many farmers were more concerned about whether they could make a profit.

### 4.2. Farmers' Perceptions and Feelings

In addition to investigating the overall ecological perception of farmers, our study also investigated and analyzed specific ecological services (biodiversity conservation, water and

air pollution, and soil erosion). Our results suggest that farmers generally believed that biodiversity declined after reforestation. After we explained this concept in detail, there was still no change in their attitudes. There are very few significant studies on whether biodiversity from the perspective of farmers is important. However, what farmers have confirmed in the interview process is that some mammals have disappeared, and the numbers of pheasants, weasels, wolves, and insect pollinators have fallen dramatically. At present, some empirical studies have found that the reforestation monoculture programs may cause a decline in biodiversity [6]. The restoration time from newly planted land to mature forests in the study area was approximately 20 years. Reforestation takes a long time before it is functionally similar to natural forest land [20], and the restoration of biodiversity levels may take even longer [21].

Not surprisingly, farmers believed that soil erosion and air quality have improved, and many studies have verified that the GGP has significantly improved these ecological functions [22,23]. However, many farmers believe that water quality has deteriorated, which may be related to the long-term mining of minerals in many local mines. The current subsidy may not meet farmers' expectations [24], however, continuously increasing subsidies may not be the best way to increase farmers' willingness to participate. Once farmers consider land as a commodity, they will always expect higher subsidies [17].

#### *4.3. Factors Affecting Farmers' Satisfaction and Willingness to Participate*

In the interviewing process, we discovered that male respondents were able to understand the problems more quickly than female respondents were, and their willingness to participate was greater. According to our preliminary statistical test, there was no significant difference in educational level between the different sexes. The reason for the difference might be because the focus of the two sexes was different. Men pay more attention to information outside the family than women [25], and men generally have the experience of going out to work, which will enhance information exchange and thus improve cognitive ability. The results showed that respondents with a high level of education generally had a positive attitude towards the GGPs already implemented, but this did not mean that they were also more willing to participate in future GGPs.

Obviously, the lessening of soil erosion has made farmers very satisfied as less soil erosion means fewer flash floods. Farmers generally claimed that since the implementation of the GGP there have been no flash floods in their areas. However, farmers were relatively unconcerned about whether the GGP improved levels of water or air pollution. According to previous research, we initially believed that, compared with several other ecological services such as water and air quality, changes in biodiversity were not so important to farmers [26,27], and the results showed that this feeling significantly affected farmers' satisfaction with the project and their willingness to participate. In fact, many farmers have a basic awareness of environmental protection and, although they do not fully understand the concept of biodiversity, they still do not want to see the number and species of animals decrease after the implementation of the new land policy [28]. Some studies have found that in some areas, personal satisfaction and preservation for future generations were the greatest motivators, whereas financial return was the lowest. Farmers showed the most interest in enhancing the diversity of wildlife [29].

Farmers who understood the concepts of ecological protection and environmental awareness recognized the ecological role of the GGP and, therefore, were satisfied with its effectiveness. Farmers who believe that returning farmland to forests was beneficial to the environment were more satisfied with the GGP and were more willing to participate, but this support may contain practical elements [30]. Therefore, in the "participation willingness without subsidy" item, this "belief" did not show a significant positive effect [31,32]. In contrast, farmers who believed we should protect other living things may not have been satisfied with the current policy but were still willing to provide abandoned land to the GGP free of charge.



## 5. Conclusions

This study investigated farmers' satisfaction and willingness to participate in the GGP through the conduction of semi-structured interviews. Our results indicated that some farmers were not satisfied with the GGP. In addition to expecting more subsidies, the dense and uninteresting forestland was also an important factor. Furthermore, our research revealed that individual farmers had unique feelings about changes in ecosystem services. From the perspective of farmers, the GGP was helpful in reducing soil loss and air pollution, but it did not help improve water quality, nor did it help protect biodiversity (and could even be harmful).

The study enhances our understanding of the factors that affect the attitudes of farmers. Education and sex affected farmers' willingness to participate. The improvement of biodiversity and soil erosion was very important, as these two factors had a positive impact on the attitudes of farmers. The level of understanding of ecological processes also affected their satisfaction, but its influence on their willingness to participate revealed a different pattern. Our findings indicated that when farmers believed in the benefits of the GGP and were willing to protect other living things, they were more likely to continue to participate in it.

Our results have important policy implications, as we identified factors that play an important role in motivating farmers to change their attitudes. Our findings indicated that farmers' feelings about ecosystem services changing and their understanding are important predictors of their satisfaction and willingness to participate. Improving farmers' ecological awareness and understanding their feelings and needs may be a better method than granting them subsidies. Policymakers should also be advised of the divergence of farmers' perceived adaptive capacity and tendencies towards loss aversion or a preference for gains. Our research can provide an important foundation for the construction and management of GGPs and is conducive to the planning of public participation in the future for future participatory planning of GGPs.

**Author Contributions:** Conceptualization, B.Z. and X.L.; methodology, X.L.; software, G.F.; formal analysis, H.G.; investigation, X.L.; data curation, H.G.; writing—original draft preparation, X.L.; writing—review and editing, X.L.; visualization, G.F.; supervision, B.Z. All authors have read and agreed to the published version of the manuscript.

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**Data Availability Statement:** The data used have been appropriately cited. Those official databases are open-access.

**Conflicts of Interest:** The authors declare no conflict of interest.

## Appendix A

The questionnaire

1. Basic characteristics  
Age\Sex\Education\Personal annual income\Occupation
2. Are you satisfied with the project of returning farmland to forest? Why?  
Satisfied\Not satisfied\Neutral
3. In your opinion, which ecological functions have improved since the implementation of the project of returning farmland to forests, and to what extent? (Score 1–5, where 1 = much worse, 2 = worse, 3 = no change, 4 = improved, and 5 = greatly improved)
  - 3.1 Biodiversity has increased (or biodiversity loss halted)
  - 3.2 Water quality has improved (or water pollution halted)
  - 3.3 Soil erosion has decreased
  - 3.4 Air quality has improved (or air pollution halted)

4. Do you agree with the following perspectives: (score −2–2, −2 = strongly disagree, −1 = disagree, 0 = do not know or difficulty in deciding, 1 = agree, 2 = strongly agree)
  - 4.1 The project of returning farmland to forest is to protect the environment (Believe the GGP to be beneficial)
  - 4.2 Each of us has a responsibility to protect the environment (Everyone is responsible)
  - 4.3 Everyone benefits from the GGP (Everyone can benefit)
  - 4.4 We should also protect other living things (Protect other living things)
5. Farmers' willingness and attitude to participate in GGP in the future
  - 5.1 Do you think the project of returning farmland to forests should continue in the future?  
Yes\No\Neutral
  - 5.2 Are you still willing to participate in the project of returning farmland to forests in the future?  
Yes\No\Neutral
  - 5.3 If you have abandoned your farmland, are you willing to participate in the GGP without subsidies?  
Yes\No\Neutral

## References

1. Lochhead, K.; Ghafghazi, S.; LeMay, V.; Bull, G.Q. Examining the vulnerability of localized reforestation strategies to climate change at a macroscale. *J. Environ. Manag.* **2019**, *252*, 109625. [\[CrossRef\]](#) [\[PubMed\]](#)
2. Li, G.P.; Shi, H.Y. Ecological compensation standard for returning farmland to forests, farmer behaviour choice and profit and loss, China's Population. *Resour. Environ.* **2015**, *255*, 152–161.
3. Buitenhuis, Y.; Candel, J.J.L.; Termeer, K.J.A.M.; Feindt, P.H. Does the Common Agricultural Policy enhance farming systems' resilience? Applying the Resilience Assessment Tool (ResAT) to a farming system case study in the Netherlands. *J. Rural Stud.* **2020**, *80*, 314–327. [\[CrossRef\]](#)
4. Ren, G.; Young, S.S.; Wang, L.; Wang, W.; Long, Y.; Wu, R.; Li, J.; Zhu, J.; Yu, D.W. Effectiveness of China's national forest protection program and nature reserves. *Conserv. Biol.* **2015**, *29*, 1368–1377. [\[CrossRef\]](#) [\[PubMed\]](#)
5. Paul, K.I.; Cunningham, S.C.; England, J.R.; Roxburgh, S.H.; Preece, N.D.; Lewis, T.; Brooksbank, K.; Crawford, D.F.; Polglase, P.J. Managing reforestation to sequester carbon, increase biodiversity potential and minimize loss of agricultural land. *Land Use Policy* **2016**, *51*, 135–149. [\[CrossRef\]](#)
6. Hua, F.; Wang, X.; Zheng, X.; Fisher, B.; Wang, L.; Zhu, J.; Tang, Y.; Yu, D.W.; Wilcove, D.S. Opportunities for biodiversity gains under the world's largest reforestation programme. *Nat. Commun.* **2016**, *7*, 12717. [\[CrossRef\]](#)
7. Kelemen, E.; Nguyen, G.; Gomiero, T.; Kovács, E.; Choisis, J.-P.; Choisis, N.; Paoletti, M.G.; Podmaniczky, L.; Ryschawy, J.; Sarthou, J.-P.; et al. Farmers' perceptions of biodiversity: Lessons from a discourse-based deliberative valuation study. *Land Use Policy* **2013**, *35*, 318–328. [\[CrossRef\]](#)
8. Long, H.; Zhang, Y.; Ma, L.; Tu, S. Land Use Transitions: Progress, Challenges and Prospects. *Land* **2021**, *10*, 903. [\[CrossRef\]](#)
9. Song, C.; Zhang, Y.; Mei, Y.; Liu, H.; Zhang, Z.; Zhang, Q.; Zha, T.; Zhang, K.; Huang, C.; Xu, X.; et al. Sustainability of Forests Created by China's Sloping Land Conversion Program: A comparison among three sites in Anhui, Hubei and Shanxi. *For. Policy Econ.* **2014**, *38*, 161–167. [\[CrossRef\]](#)
10. Chen, Y.; Yu, Z.; Li, X.; Li, P. How agricultural multiple ecosystem services respond to socioeconomic factors in Mengyin County, China. *Sci. Total Environ.* **2018**, *630*, 1003–1015. [\[CrossRef\]](#)
11. Wang, G.; Ma, O.Z.; Wang, L.; Shrestha, A.; Chen, B.; Mi, F.; Liu, S.; Guo, X.; Eshpeter, S.; Innes, J.L. Local perceptions of the conversion of cropland to forestland program in Jiangxi, Shaanxi, and Sichuan, China. *J. For. Res.* **2019**, *30*, 1833–1847. [\[CrossRef\]](#)
12. Zhang, Q.; Xiao, H.; Duan, M.; Zhang, X.; Yu, Z. Farmers' attitudes towards the introduction of agri-environmental measures in agricultural infrastructure projects in China: Evidence from Beijing and Changsha. *Land Use Policy* **2015**, *49*, 92–103. [\[CrossRef\]](#)
13. Zhang, L.; Tu, Q.; Mol, A.P.J. Payment for environmental services: The sloping land conversion program in Ningxia autonomous region of China. *China World Econ.* **2008**, *16*, 66–81. [\[CrossRef\]](#)
14. Yang, B. Performance evaluation model of economic compensation policy for cultivated land protection in coastal areas based on propensity value matching method. *J. Coast. Res.* **2020**, *103*, 19–23. [\[CrossRef\]](#)
15. Vaidya, A.; Mayer, A.L. Use of the participatory approach to develop sustainability assessments for natural resource management. *Int. J. Sustain. Dev. World Ecol.* **2014**, *21*, 369–379. [\[CrossRef\]](#)
16. Kallio, H.; Pietilä, A.M.; Johnson, M.; Kangasniemi, M. Systematic methodological review: Developing a framework for a qualitative semi-structured interview guide. *J. Adv. Nurs.* **2016**, *72*, 2954–2965. [\[CrossRef\]](#) [\[PubMed\]](#)
17. Zhang, B.J.; Li, P.L.; Xu, Y.; Yue, X.H. What affects farmers' ecocompensation expectations? An empirical study of returning farmland to forest in China. *Trop. Conserv. Sci.* **2019**, *12*, 1940082919857190. [\[CrossRef\]](#)

18. Li, P.Y.; Chen, Y.J.; Hu, W.H.; Li, X.; Yu, Z.R.; Liu, Y.H. Possibilities and requirements for introducing agri-environment measures in land consolidation projects in China, evidence from ecosystem services and farmers' attitudes. *Sci. Total Environ.* **2019**, *650*, 3145–3155. [[CrossRef](#)]
19. Xie, H.; Wu, Q. Farmers' willingness to leave land fallow from the perspective of heterogeneity: A case-study in ecologically vulnerable areas of Guizhou, China. *Land Degrad. Dev.* **2020**, *31*, 1749–1760. [[CrossRef](#)]
20. Kemppinen, K.M.S.; Collins, P.M.; Hole, D.G.; Wolf, C.; Ripple, W.J.; Gerber, L.R. Global reforestation and biodiversity conservation. *Conserv. Biol.* **2020**, *34*, 1221–1228. [[CrossRef](#)]
21. De Araújo, G.J.; Izzo, T.J.; Storck-Tonon, D.; Paolucci, L.N.; Didham, R.K. Re-establishment of cavity-nesting bee and wasp communities along a reforestation gradient in southern Amazonia. *Oecologia* **2021**, *196*, 275–288. [[CrossRef](#)] [[PubMed](#)]
22. Avera, B.N.; Strahm, B.D.; Burger, J.A.; Zipper, C.E. Development of ecosystem structure and function on reforested surface-mined lands in the Central Appalachian Coal Basin of the United States. *New For.* **2015**, *46*, 683–702. [[CrossRef](#)]
23. Yu, Y.; He, J.J.; Zhao, S.P.; Liu, N.; Chen, J.B.; Mao, H.J.; Wu, L. Numerical simulation of the impact of reforestation on winter meteorology and environment in a semi-arid urban valley, Northwestern China. *Sci. Total Environ.* **2016**, *569–570*, 404–415. [[CrossRef](#)] [[PubMed](#)]
24. Wang, X.Y.; Adamowski, J.F.; Wang, G.D.; Cao, J.J.; Zhu, G.F.; Zhou, J.J.; Liu, C.F.; Dong, X.G. Farmers' willingness to accept compensation to maintain the benefits of urban forests. *Forests* **2019**, *10*, 691. [[CrossRef](#)]
25. Schmitt, D.P.; Long, A.E.; McPhearson, A.; O'Brien, K.; Remmert, B.; Shah, S.H. Personality and gender differences in global perspective. *Int. J. Psychol.* **2017**, *52*, 45–56. [[CrossRef](#)]
26. Liu, X.J.; Liu, D.F.; Zhao, H.Z.; He, J.H.; Liu, Y.L. Exploring the spatio-temporal impacts of farmland reforestation on ecological connectivity using circuit theory: A case study in the agro-pastoral ecotone of North China. *J. Geogr. Sci.* **2020**, *30*, 1419–1435. [[CrossRef](#)]
27. Zhang, P.; Ye, Q.; Yu, Y. Research on farmers' satisfaction with ecological restoration performance in coal mining areas based on fuzzy comprehensive evaluation. *Glob. Ecol. Conserv.* **2021**, *32*, e01934. [[CrossRef](#)]
28. Knoth, R.; Bosshard, A.; Junge, X. Farmers' and experts' attitudes towards the new agricultural policy. *Agrar. Schweiz* **2015**, *6*, 110–117.
29. Starr, S.E.; McConnell, T.E. Changes in Ohio tree farmers' forest management strategies and outreach needs. *For. Sci.* **2014**, *60*, 811–816. [[CrossRef](#)]
30. Li, X.; Cirella, G.T.; Wen, Y.; Xie, Y. Farmers' Intentions to Lease Forestland: Evidence from Rural China. *Land* **2020**, *9*, 78. [[CrossRef](#)]
31. Yao, L.; Yan, X.; Xu, M.; Wu, M.; Yu, Z.; Li, M. Study on Herders' Willingness to Protect Grassland Based on the IAD Extended Decision Model. *Land* **2021**, *10*, 424. [[CrossRef](#)]
32. Johnson, M.L.; Bell, K.P.; Teisl, M.F. Does reading scenarios of future land use changes affect willingness to participate in land use planning? *Land Use Policy* **2016**, *57*, 44–52. [[CrossRef](#)]