

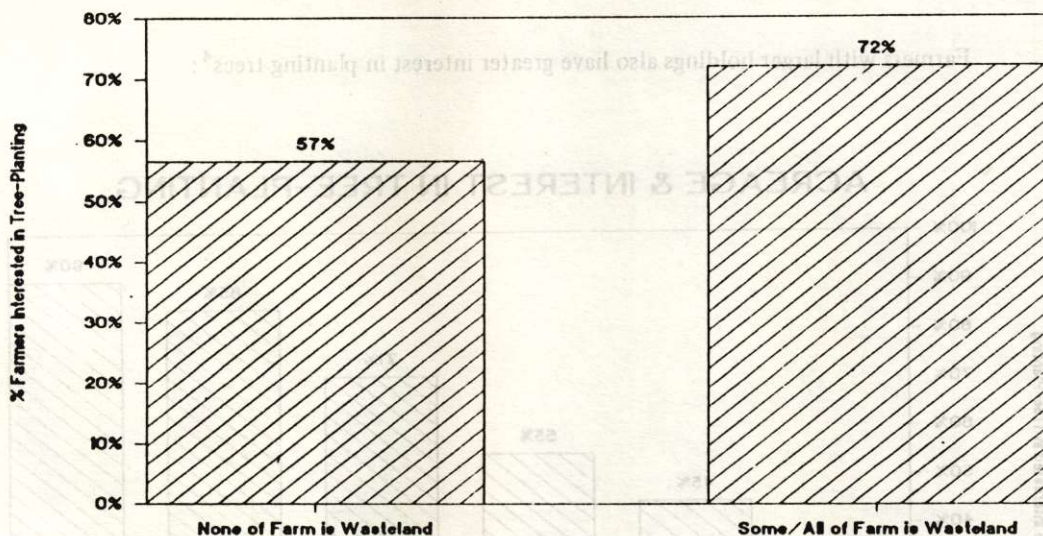
## PROSPECTS FOR FARM FORESTRY IN PAKISTAN, PART II: HOUSEHOLD-LEVEL DETERMINANTS

Michael R. Dove\*

### I. Interest in Planting Trees

Nation-wide, 66% of farm households express interest in planting trees<sup>1</sup>. Interest is greater among farmers owning some wasteland than among farmers whose lands are all cultivable<sup>2</sup>:

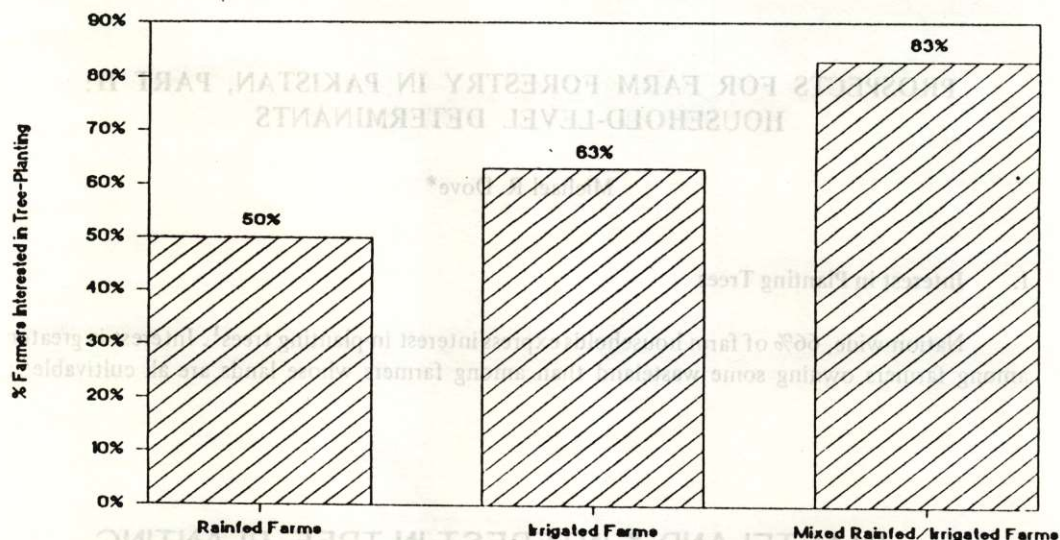
### WASTELAND & INTEREST IN TREE-PLANTING



Interest also is greater among farmers whose land is partially irrigated<sup>3</sup>:

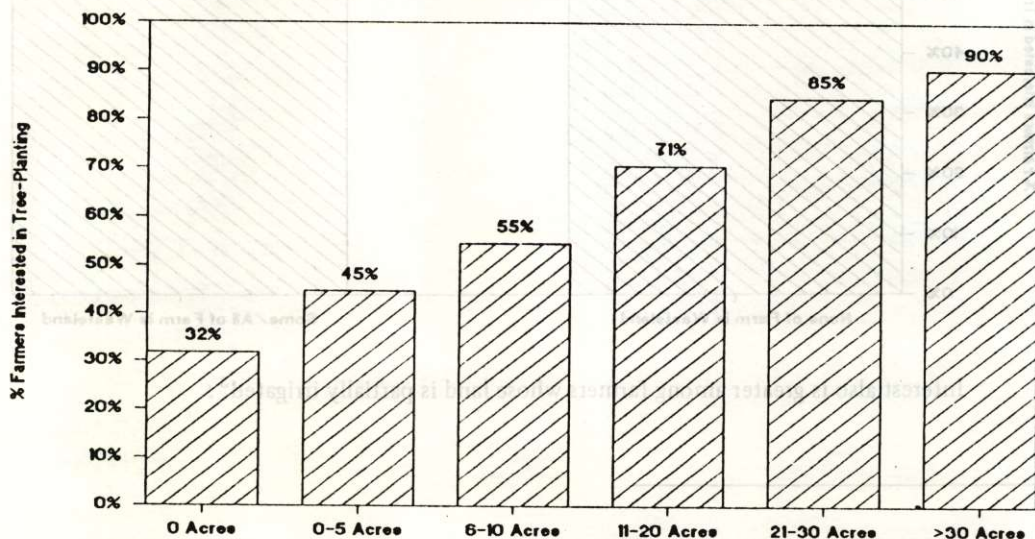
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## IRRIGATION &amp; INTEREST IN TREE-PLANTING



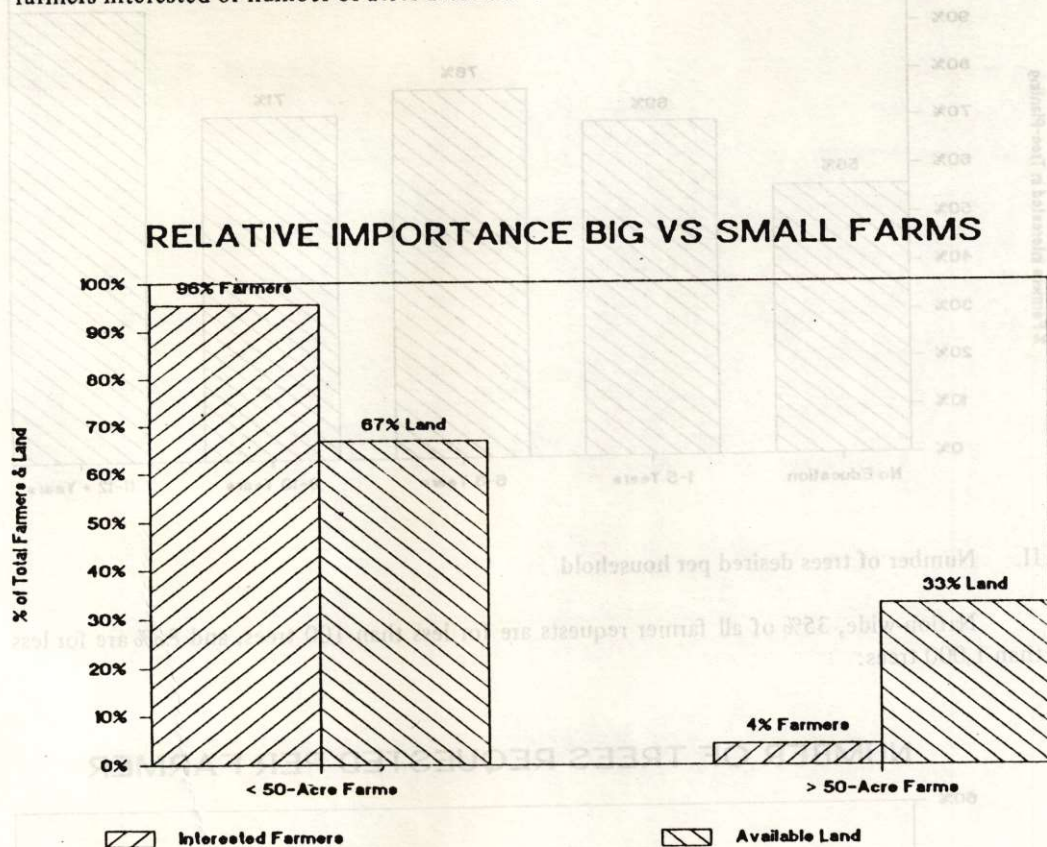
Farmers with larger holdings also have greater interest in planting trees<sup>4</sup>:

## ACREAGE &amp; INTEREST IN TREE-PLANTING



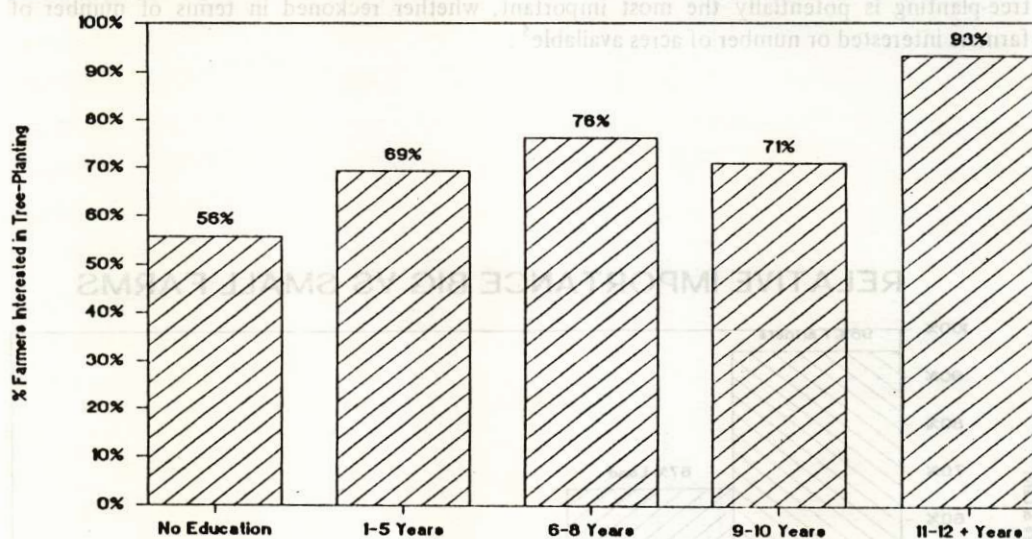


Since the small landowners predominate in the countryside, however, their interest in tree-planting is potentially the most important, whether reckoned in terms of number of farmers interested or number of acres available<sup>5</sup>:



Farmers who let out their land to tenants are more interested in tree-planting than farmers who do not. Tenants themselves are neither more nor less interested than other farmers, which refutes the common assumption that tenants have no interest in planting trees<sup>6</sup>. Interest is also higher among the better-educated farmers<sup>7</sup>. However, even among completely illiterate farmers—who constitute a majority of the rural population—a *majority* are still interested in planting trees. Thus, literacy is *not* a prerequisite to interest in development in general, or to 'tree-mindedness' in particular.

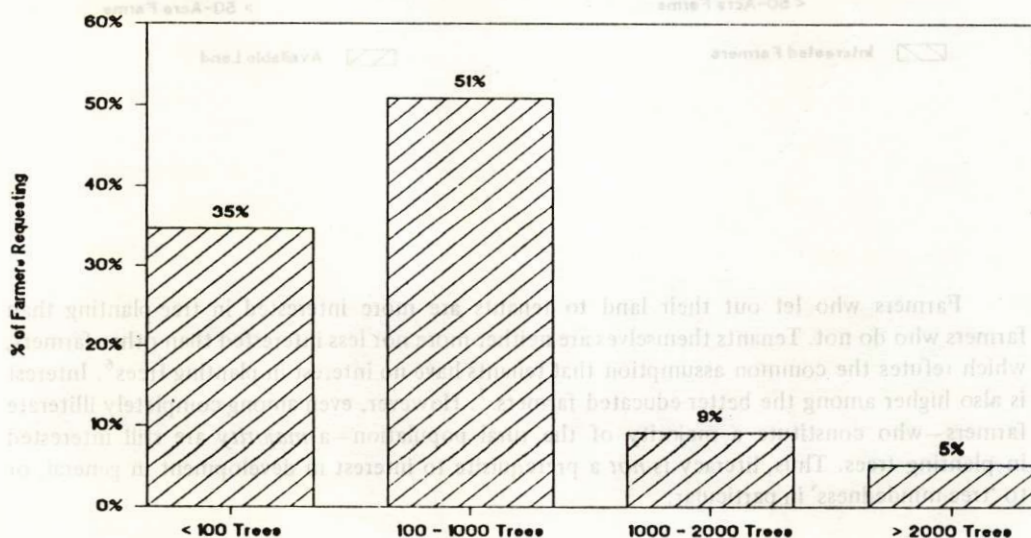
## EDUCATION & INTEREST IN TREE-PLANTING



### II. Number of trees desired per household

Nation-wide, 35% of all farmer requests are for less than 100 trees, and 86% are for less than 1,000 trees:

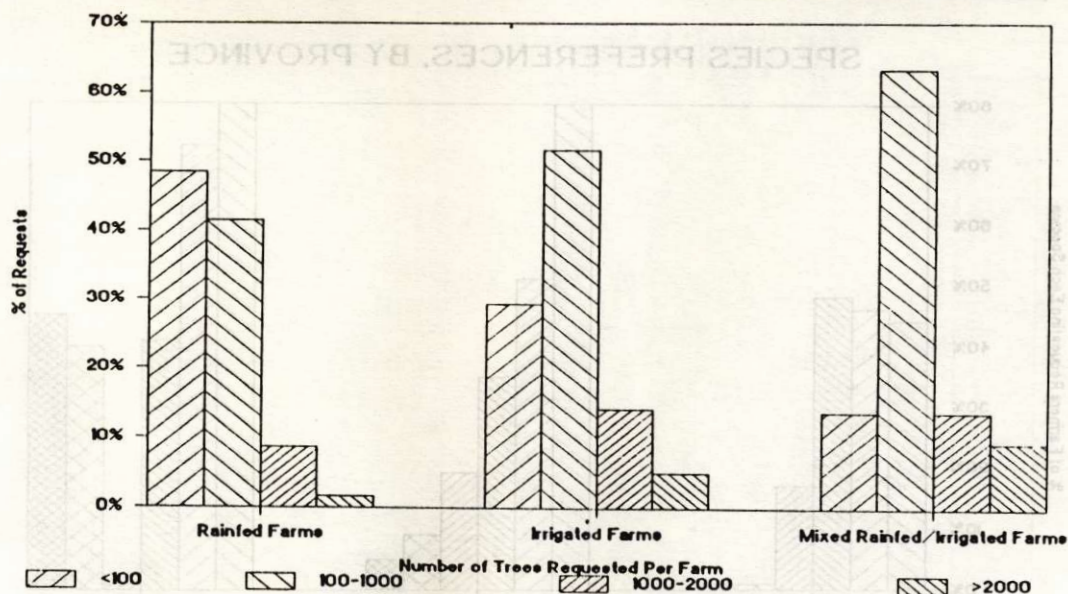
## NUMBER OF TREES REQUESTED PER FARMER





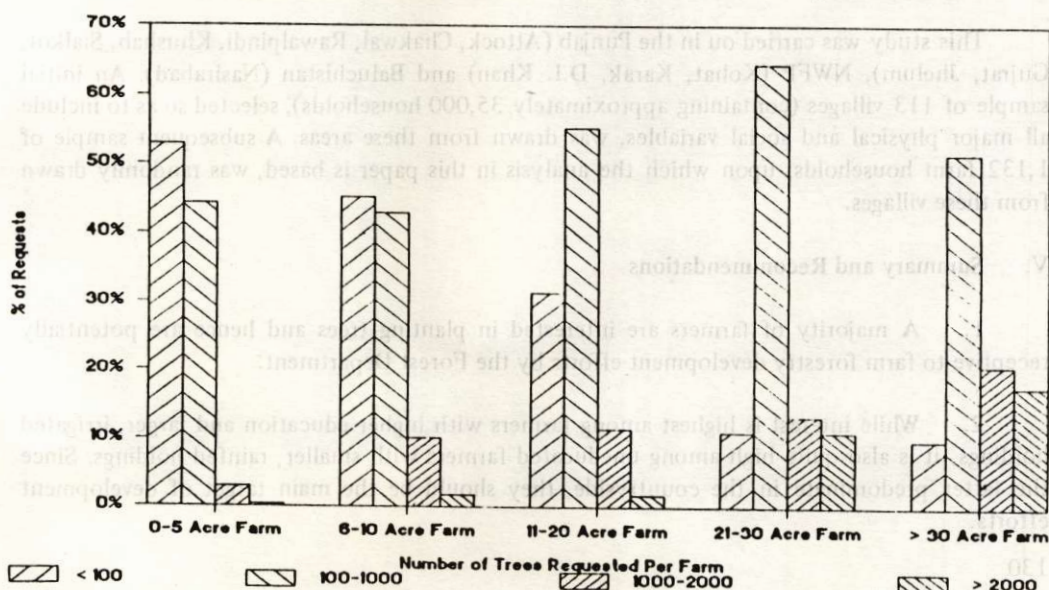
The number of trees requested averages 420 in the Punjab, 575 in the NWFP, and 312 in Baluchistan. Farmers with mixed rainfed/irrigated lands request the most trees<sup>8</sup>:

### IRRIGATION & NUMBER OF TREES REQUESTED



Farmers with larger holdings also request more trees<sup>9</sup>. However, they request fewer trees *per farm acre* than farmers with smaller holdings: the latter (and even landless tenants) want to plant trees at higher overall farm densities<sup>10</sup>.

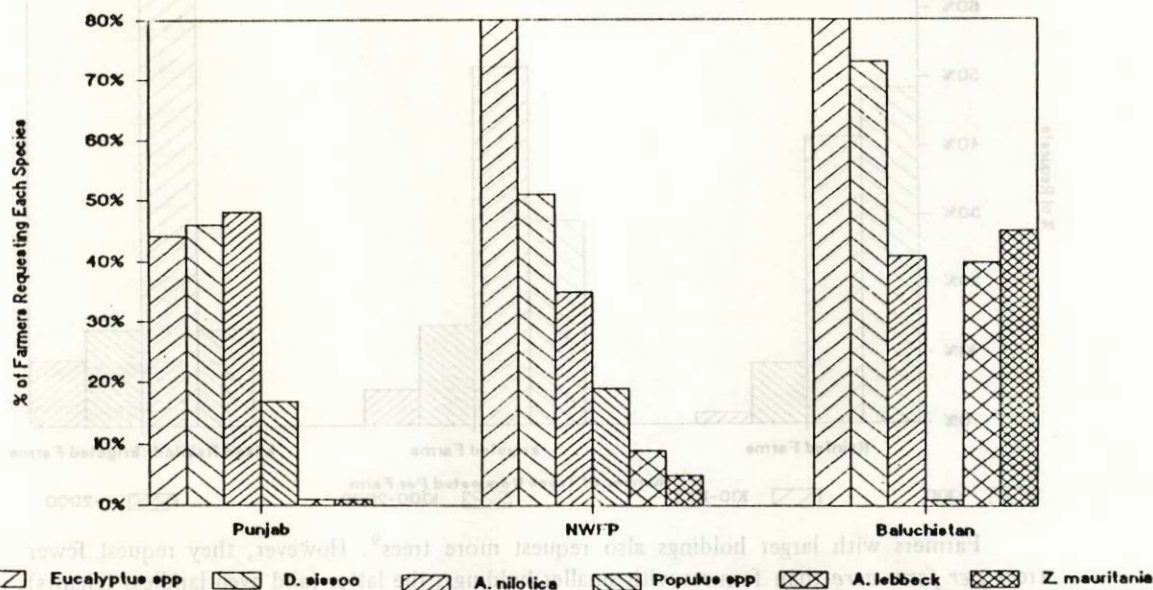
### ACREAGE & NUMBER OF TREES REQUESTED



### III. Species Preferences

The species preferences of farmers, and the extent of inter-provincial variation in these preferences, are as follows:

#### SPECIES PREFERENCES, BY PROVINCE



### IV. Methodology

This study was carried out in the Punjab (Attock, Chakwal, Rawalpindi, Khushab, Sialkot, Gujrat, Jhelum), NWFP (Kohat, Karak, D.I. Khan) and Baluchistan (Nasirabad). An initial sample of 113 villages (containing approximately 35,000 households), selected so as to include all major physical and social variables, was drawn from these areas. A subsequent sample of 1,132 farm households, upon which the analysis in this paper is based, was randomly drawn from these villages.

### V. Summary and Recommendations

1. A majority of farmers are interested in planting trees and hence are potentially receptive to farm forestry development efforts by the Forest Department.

2. While interest is highest among farmers with higher education and larger, irrigated holdings, it is also quite high among uneducated farmers with smaller, rainfed holdings. Since the latter predominate in the countryside, they should be the main target of development efforts.



3. Development efforts should also target farmers with some wastelands, because their interest in tree-planting is higher as well.

4. Farmers have their own species preferences, which the Forest Department should cater to in development efforts, except insofar as they involve commercial species for which future markets are uncertain.

5. Since most farmers want (at least initially) to plant fewer than 1,000 trees, efforts by the Forest Department to develop farm forestry should concentrate on *small* plantings.

### End Notes

1. This study was supported by the Forestry Planning and Development Project, jointly funded by the Government of Pakistan and US/AID, under the direction of the Office of the Inspector General of Forests. The author, project anthropologist for the Winrock International Institute for Agricultural Development, was assisted by project sociologist Jamil A. Qureshi, and by project researchers Riaz Ahmad, Sarfraz Ahmad, Nisar Ahmed, Abul Hassan, Zafar Masood, Shamsul Qamar, Nadeem Shahzad, Gul Mohammad Umrani, and Nazir Marvat. The author alone is responsible for the opinions presented here.

2. For  $n=804$  Punjab & NWFP farm households,  $X^2=10.0$ ,  $P<0.05$ . This and subsequent analyses of either interest in tree-planting or irrigation exclude the Baluchistan study area, where both interest and irrigation approach 100%.

3. For  $n=834$  Punjab & NWFP farm households,  $X^2=48.4$ ,  $P<0.01$ .

4. For  $n=875$  Punjab & NWFP farm households,  $X^2=106.8$ ,  $P<0.01$ .

%. This is based on 1980 census data for 16 sample tehsils (Attock, Fateh Jang, Rawalpindi, Gujar Khan, Jhelum, Chakwal, Khushab, Pasrur, & Gujrat in Punjab; and Kohat, Hangu, Karak, Banda Daud Shah, D.I. Khan, & Kulachi in NWFP):

	Total No.	Interested	Total Acres	Available
< 50-Acre Farms	799,130	427,538	6,915,491	3,705,664
< 50-Acre Farms	21,172	19,760	1,975,152	1,840,602

6. Regarding landlord status and interest in tree-planting: for  $n=826$  Punjab & NWFP farm households,  $X^2=26.4$ ,  $P<0.01$ . Regarding tenant status and *lack* of interest: for  $n=875$  Punjab & NWFP farm households,  $X^2=3.4$ ,  $P<0.10$ .

7. For  $n=877$  Punjab & NWFP farm households,  $X^2=27.7$ ,  $P<0.01$ .

8. For  $n=460$  Punjab & NWFP farm households,  $X^2=50.0$ ,  $P<0.001$ .
9. For  $n=494$  Punjab, NWFP, & Baluchistan landowners,  $X^2=105.9$ ,  $P<0.001$ .
10. For  $n=642$  Punjab, NWFP, & Baluchistan farm households,  $X^2=2.5$ ,  $P<0.50$ .

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2. For  $n=804$  Punjab & NWFP farm households,  $X^2=10.0$ ,  $P<0.005$ . This and subsequent analyses of either interest in tree-planting or irrigation exclude the Baluchistan study area, where both interest and irrigation approach 100%.

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4. For  $n=875$  Punjab & NWFP farm households,  $X^2=106.8$ ,  $P<0.001$ .

5. This is based on 1980 census data for 10 sample tehsils (Attock, Feroz Khan, Rawalpindi, Gujrat, Khan, Jhelum, Chakwal, Kasur, Faisalabad, Gujrat in Punjab; and Kohat, Hangu, Karak, Bannu and Shal, D.I. Khan, & Kohat in NWFP).

	Total No.	Interested	Total Acres	Available
> 50-Acre Farms	799/130	427/238	6,912/491	3,705/664
< 50-Acre Farms	21/172	19/260	1,972/132	1,849/602

6. Regarding landhold status and interest in tree-planting: for  $n=826$  Punjab & NWFP farm households,  $X^2=20.4$ ,  $P<0.001$ . Regarding tenant status and lack of interest: for  $n=875$  Punjab & NWFP farm households,  $X^2=3.4$ ,  $P<0.10$ .

7. For  $n=875$  Punjab & NWFP farm households,  $X^2=27.7$ ,  $P<0.001$ .