

**C H A P T E R   V I**  
**E C O N O M I C S   O F   W E E D   C O N T R O L**  
**A N D**  
**I N T E R C U L T U R A L   P R A C T I C E S**

ECONOMICS OF WEED CONTROL  
AND INTERCULTURAL PRACTICES

Of the wasteful traditional intercultural practices, perhaps the most important one is hand weeding. Specially in tropics the weed growth is normally very rapid, and in the humid region particularly its control invariably means the difference between success and failure of crop. Small farmers who continue to use hand implements for weed control spend the major part of their labour on this operation and it is often not adequately done, with consequent adverse effects on the crop yields. Hence a major step can be made by substituting herbicides for the laborious hand weeding method of weed control and diverting a great portion of the available labour force for other productive work. Most of these herbicides are normally much cheaper and hence even when used on a small scale the unit costs are relatively low and easily justified economically in average small farming enterprise (Campbell, 1968).

In jute specially cost of production in different size of holding occupy an important place in the field of economic investigation, which is characterized by uncertainty in price, yield and industrial

factors including Government policies. Cost of cultivation in jute for Nadia district was reported by Maji & Pal (1971) to be varying from Rs.971.00 to Rs.1007.80 per hectare in cultivators' fields while Mitra and Majumder (1970) reported variation from Rs.967.00 to Rs.1653.00 per hectare particularly in two districts i.e. Hooghly and 24-Parganas from National Demonstration plots. These studies further reveal that a major portion of the operational cost goes for weeding operation.

From farmer's point of view, economics of an agronomic practice is usually a major decideratum towards adoption of that practice. Whereas physical yield aspects of the practice cannot altogether be neglected, particularly under the prevailing situation of food grain shortage and economic considerations of the country ; the farmer's incentive is mostly based on economics of the practice that he is adopting. It was, therefore, of interest to compare the performance of various herbicides treatments alone or in conjunction with inter-cultivations, on the basis of net economic returns per unit area by adoption of each of the herbicidal treatments. A statement of the cost of cultivation, total returns and net returns from various treatments is given in Tables 86 and 87 for the year 1973-74.

It is evident from the Table 86 that while working out general

cost of cultivation for different items, cost on hand weeding was worked out to be 36.40 per cent for Capsularis jute and 38.09 per cent for Olitorius jute of the total cost of cultivation in the present investigation. Sanyal (1953) and Kundu et al (1955) have reported that this operation entails the biggest expenditure in jute cultivation, sometimes as high as 40 per cent in broadcast sown crop. Recently, Patel and Mitra (1972) reported that hand weeding even in row planted jute comes out to be 32 per cent of total cost of cultivation where triple cropping is adopted. This amount may be even more if mono cropping or double cropping is adopted.

This table further reveals that cost on chemical weeding i.e. cost of herbicide and application charges, comes out to be only 30 per cent of the cost on hand weeding operation. This figure may go a little higher depending upon weed intensity, stage of spray and climatic conditions. In the present investigation, however, the amount on chemical weed control varies from Rs.162.20 to Rs.212.20 per hectare as against Rs.640.00 in hand weeded treatment.

Examination of the Table 87 indicates that the net profit varies from one herbicide to the other, this being Rs.2328.80 to Rs.2775.30. The maximum return was from the plot treated with Ansar 529 (MSMA) at 4.5 kg. a.i. per hectare as post-emergence directed spray

(Rs.2,775.30) followed with Ansar 529P and with a mixture of Ansar 529 plus Dowpon at 2.25 kg. a.i. and 3 kg. a.i., this being Rs.2514.80 and Rs.2431.30 per hectare respectively. The lowest was in hand weeded plots. It may be mentioned here that wheel hoeings were given in all treatments.

The data of the second trial clearly show that the fibre yield in one herbicide application coupled with 4 wheel hoeings and one herbicide application plus one hand weeding plus 4 wheel hoeings were statistically at par with that of 2 hand weeding and 4 wheel hoeings. In above treatments net profit was Rs.3028.88 and Rs.2877.05 respectively as against Rs.2575.94 in conventional method.

It is also apparent from the data that 4 wheel hoeings in conjunction with chemical weeding enhanced the fibre yield in each treatment. This may perhaps be due to the reason that some mulching of soil is necessary in this crop for better aeration and improvement of tilth, although empirical evidences are lacking. Das et al (1962), however, advocated that two hand weedings coupled with four wheel hoeings were essential for better returns and high profit. In support for use of chemicals for efficient, timely and economical weed control for crop production, Campbell (1968) stated that though the small farms in tropics are affected by a number of socio-economic and physical

factors which are complex and are not easily solved by farmers on an individual basis. However, he suggested that considerable improvements in efficiency of production can be achieved by simple changes in traditional practices.

From the above findings it may be concluded that for higher profit, one application of herbicide for weed control may be coupled with four wheel hoeings, commencing from 2 weeks to 6th week crop age. The cost of 4 wheel hoeings will come to about Rs.38.40 per hectare in addition to Rs.162.20 to Rs.212.20 towards chemicals, at prevailing market rates.