SEED CUM FERTILIZER DRILL

COST EFFECTIVE IMPLEMENT FOR SOWING CROPS UNDER RAINFED CONDITIONS

Vivek Sharma, Vijay Kumar, Anil Khokhar, Manmohanjit Singh,
S.C. Sharma, Satvinder Singh and Sukhvinder Singh

ALL INDIA CO-ORDINATED RESEARCH PROJECT FOR DRYLAND AGRICULTURE

REGIONAL RESEARCH STATION

(PUNJAB AGRICULTURAL UNIVERSITY)

BALLOWAL SAUNKHRI DISTT: S.B.S. NAGAR 144 521 (PUNJAB)

SEED CUM FERTILIZER DRILL – COST EFFECTIVE IMPLEMENT FOR SOWING CROPS UNDER RAINFED CONDITIONS

Sub-mountainous zone of Punjab also known as *Kandi* area which comprises of 21 blocks and is spread over parts of Pathankot, Hoshiarpur, SBS Nagar, Rupnagar and Ajitgarh districts lying between 30°44′ and 32°32′ north latitude and 75°52′ and 76°43′ Eeast longitudes covering about 7.8% of total geographical area of Punjab state. Punjab government has notified the entire kandi area as backward area of the state becauseland holding are small (<1 ha) & fragmented and farmers are resource poor. The erratic rainfall and frequent dry spells are severe problems and agriculture is mostly rainfed due to lack of irrigation facilitiesin the region. The normal annual rainfall is about 1080 mm but 80% of this rain is received during three monsoon months and results in high runoff and soil erosion.

In *rabi* season, crop failure has become a common problem in the region and famers even keep some of their land fallow because sowing of crops generally depend on residual soil moisture. In case the proper sowing method is not followed, or the seed is sown at shallow depth, the germination as well as the crop stand is affected. Earlier in most of crops, seed sowing was done by *kera* method with bullock ploughing. But with the passage of time, farmers started ploughing field with tractors and broadcasting of seed has become the common method of seed sowing in *kharif* and *rabi* season. Broadcasting method of seed sowing is imprecise and leads to uneven distribution as well as depth of the seeds, poor germination and ultimately low crop productivity.

The technologies developed by the AICRPDA – Ballowal Saunkhri centre are being transferred to the farmers' fields under AICRPDA-ORP and National Innovations on Climate Resilient Agriculture (NICRA) project. Various practices like selection of suitable crops, high yielding and drought tolerant varieties, integrated, judicious and balanced use of chemicals & fertilizers and use of latest agriculture implements are being demonstrated in adopted villages. The ultimate aim is to popularize the use of latest agro-technologies with reduction in cost of cultivation. Other mode of technology transmission like awareness camps, training programmes, field days and exposure visits are also regularly organized. To motivate the farmers for use of latest agricultural machinery, custom hiring centre of agricultural implements has been established in the NICRA villages, where farmers can avail services of latest implements.

The use of seed cum fertilizer drill during *rabi* season is widely accepted by the farmers due to significant increase in crop yield and reduction in cost of cultivation. **Seed cum fertilizer drill** is a sowing implement that precisely places seeds and

The use of seed cum fertilizer drill during *rabi* season is widely accepted by the farmers due to significant increase in crop yield and reduction in cost of cultivation. **Seed cum fertilizer drill** is a sowing implement that precisely places seeds and fertilizers in the soil moisture zone at equal distances and proper depth. The implement reduces the quantity of seed and fertilizer resulting in uniform germination and higher grain yield compared to other methods of sowing.

AICRPDA - Ballowal Saunkhri: Interventions for Promotion of Seed cum Fertilizer Drill

AICRPDA - Ballowal Saunkhri centre promoted the use of seed cum fertilizer drill for wheat and oil seed crops through technical guidance (demonstrations, field days) as well as by providing the seed cum fertilizer drill in ORP and NICRA adopted villages. More than 100 demonstrations were conducted in the adopted villages from 2012-2015, to demonstrate the impact of seed cum fertilizer drill in improving crop productivity and net returns.

Improvement in crop productivity and economic benefits

Sowing of wheat with seed cum fertilizer drill gave 10-12 per cent higher grain yield over wooden plough and 25-35 per cent over broadcasting method of seed sowing under rainfed conditions.In oilseed crops, drill sowing has resulted in significantly high grain /seed yield, which varied from 18-121 percent. The sowing with seed cum fertilizer drill resulted in uniform germination and optimum crop stand throughout the field even under rainfed conditions.It also increased the rain water use efficiency compared to sowing with other methods.

The net return and benefit cost ratio of the crops increased significantly with the use of seed cum fertilizer drill. Additional income of Rs. 4,000-6,000 in wheat, Rs. 7,000-11,000 in raya and Rs. 3,000-5000 in taramira was realized (on average basis) with B:C ratio of 2.42, 2.15 and 2.10, respectivelywith drill sowing over other methods of sowing.

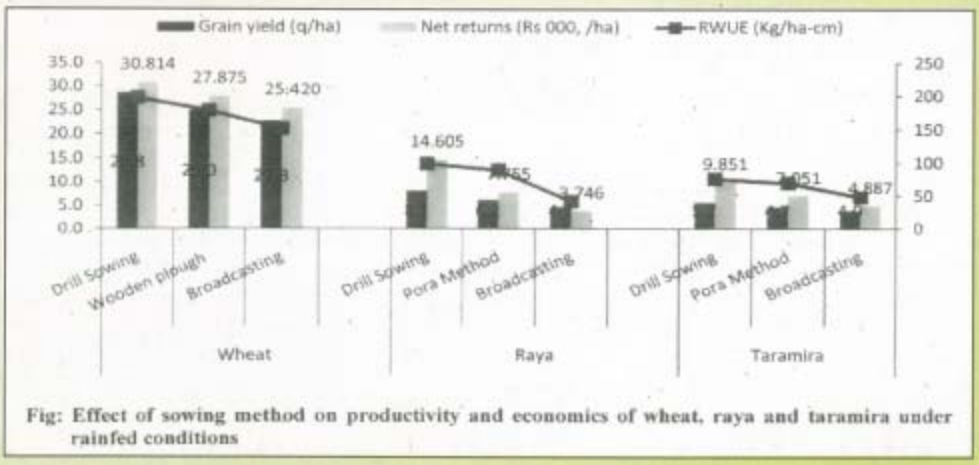

Fig: Effect of sowing method on productivity and economics of wheat, raya and taramira under rainfed conditions

Impact

The cost of cultivation in crops is increasing every year due to increase in price of inputs and labour.Non availability of labour is the utmost problem in the agriculture sector. Introduction of the agricultural implements such as seed drill have significantly reduced the labour as well as other inputs due to theirjudicious utilization. Thus, it is helping in reducing the cost of cultivation and increasing the crop yield significantly. Presently, most of the farmers in the adopted villages are using the seed cum fertilizer drill. The use of seed cum fertilizer drill is also becoming popularized among the farmers in the adjoining villages. Custom hiring centre of agricultural implements or use of agricultural implements on community sharing basis has become a great asset for the small and resource poor farmers of the *Kandi* area of Punjab. Hence, there is need to further popularize such type of agricultural implements to improve and sustain the agriculture productivity under rainfed conditions.