

AGRICULTURAL ENGINEERING (IMPLEMENTS) SECTION

Agricultural machinery has got immense importance in present day agriculture. Almost all the crops grown in district Ludhiana require high use of agricultural machinery. Main crops of district are wheat and paddy. These crops need newly developed machines to make cropping easy and viable. Wheat crop is mechanized from sowing to threshing but paddy needs more mechanisation from its present state. So in Ludhiana district, some good and effective schemes are needed to make agricultural processes more fast and accurate. Engineering section consists of Agricultural Engineers, Agricultural Inspectors (Implements), Junior Technicians and supporting ministerial and group "D" staff. All engineering schemes are dealt with by engineering section of agriculture department. Asstt Agricultural Engineer (Implements), Ludhiana is the district head of this section.

To make district agriculture more mechanised, some of the following schemes are proposed so that farmers can reduce the cost of production and make their cropping sustainable.

1. FAMILY SIZE BIOGAS PLANTS INSTALLATION-

Biogas plants are a good and less costly source of energy. It is also included in central govt's 20 point programme as point number 19D. These plants should be installed in village homes to tackle energy crisis in villages as well as whole state. Biogas plants not only give energy for cooking but also give clean look to roads in villages and produce very good quality manure for fields and reduce the need of burning trees/wood and helps in preventing environmental pollution. As per govt. policy, incentives can be given to farmers who install family size biogas plant for their home use. So under this scheme, every year a good number of families size biogas plants could be installed in district. During next five years, following plants and financial help could be given:-

| Year | No. of biogas plants to be installed in distt | Incentives amount proposed per plant | Total amount needed (Lac) | Remarks |
|-----------------|---|--------------------------------------|---------------------------|---|
| 1 st | 100 | 5000 | 5 | Incentives amount per plant is increased on yearly basis due to rising cost of construction |
| 2 nd | 100 | 5000 | 5 | |
| 3 rd | 150 | 5000 | 7.5 | |
| 4 th | 150 | 6000 | 9 | |
| 5 th | 200 | 6000 | 12 | |
| Total | 700 | | 38.5 | |

2. PROMOTION OF NEWLY DEVELOPED AGRI MACHINERY/EQUIPMENTS

Latest farm machines have been developed to conserve natural resources and to make farming operations easy and less time consuming. But newly developed machinery is very costly and is out of reach of small farmer. So to make newly developed agri. Machinery available to farmers and to reduce their expenditure on machinery, farm machinery could be given on incentives to individual farmers. These machines may include zero till drills, rotavators, sprayers, bed planters, sprayers, self propelled reapers etc.

| Year | Budget needed per year for incentives on machines (Lac) | Machines which could be included in this scheme |
|-----------------|--|--|
| 1 st | 30 | Rotavators, sprayers, bed planters, sprayers, self propelled reapers, forage reaper, forage chopper cum loader, multi crop planter, threshers, self propelled fodder harvesters etc. |
| 2 nd | 35 | |
| 3 rd | 40 | |
| 4 th | 45 | |
| 5 th | 50 | |
| Total | 200 | |

3. FARM MACHINERY SERVICE CENTRE:-

Newly developed farm machinery can make farm processes easy and fast resulting in reduction in cost of labour and time and thereby reducing cost of production. But this machinery is very costly. So to reduce the burden of heavy capital investment and high fixed cost of latest machinery, it is proposed to open some Farm Machinery Service Centre in villages which will be equipped with newly developed and latest machinery and will give it to farmers on custom hiring basis. This will reduce burden from farmers to purchase new machinery as well as these centre will give jobs to some unemployed/ educated youth of village. These centres could be given 33% or 50% or fixed amount of reimbursement on total expenditure which would be incurred on purchasing machinery. This scheme in district should be implemented in phases and could be completed in next 5 years as per following details:-

| Year | No. Of service centres to be opened per block | Incentives budget needed per centre (Lac) | Total no. Of centres in all 12 blocks per year | Total budget needed per year (Lac) |
|-----------------|--|--|---|---|
| 1 st | 1 | 3.5 | 12 | 42 |
| 2 nd | 2 | 3.75 | 24 | 90 |
| 3 rd | 2 | 4 | 24 | 96 |
| 4 th | 2 | 4.25 | 24 | 102 |
| 5 th | 3 | 4.5 | 36 | 162 |
| Total | | | 120 | 492 |

4. PROMOTION OF LASER LANDS LEVELLER

Water is most precious element in agriculture as well as in human life. There is an urgent need to conserve it and to use it very judiciously. One method to reduce need of water in agriculture is to level the fields with high tech laser land leveller. By using this technique, fields can be levelled very accurately and if needed, slopes can also be given. This machine is presently very costly i.e. 3.5 Lac per machine without tractor. This machine should be given to farmers on incentives so that farmers could be made interested in using this technique. Moreover this will give employment to some of educated youth in villages which can use this on custom hiring basis. This machine could be given on incentives as per following suggestive detail:-

| Year | Proposed incentives per machine (Lac) | No. Of machines to be given in district | Total budget needed in a year (Lac) |
|-----------------|--|--|--|
| 1 st | 1.5 | 120 | 180 |
| 2 nd | 1.5 | 120 | 180 |
| 3 rd | 1.5 | 100 | 150 |
| 4 th | 2 | 100 | 200 |
| 5 th | 2 | 80 | 160 |
| Total | | 520 | 870 |

5. PROMOTION OF PADDY TRANSPLANTER

Almost all crops sown in district are nearly 100% mechanised except paddy crop. Paddy sowing is affected if availability of labour is reduced. Also if labour cost increases, cost of production is enhanced. Moreover, paddy transplantation is very tedious job for labour. To reduce these effects, paddy transplanters should be used in district Ludhiana. These can reduce drudgery in paddy transplantation, decrease sowing period, and can give job to skilled unemployed youth. These machines can start a new business of growing and selling of mat type nursery. These machines could be given on incentives to farmers under this scheme. To make this machine popular amongst farmers, incentives could be given in a phased manner in next five years as per following details:-

| Year | No. Of machines to be given on incentives in district | Incentives amount per machine(Lac) | Total budget needed (Lac) |
|-----------------|--|---|----------------------------------|
| 1 st | 12 | 1.5 | 18 |
| 2 nd | 12 | 1.5 | 18 |
| 3 rd | 12 | 1.5 | 18 |
| 4 th | 24 | 1 | 24 |
| 5 th | 24 | 1 | 24 |
| Total | 84 | 1-1.5 | 102 |

TOTAL OF 1-5: 38.5+200+492+870+102= Rs. 1702.5 Lac

Problems and suggestive remedies:-

All these schemes need effective monitoring by departmental engineers, so adequate engineering staff shortage should be provided in the district. Department is already facing technical staff. So some new agricultural engineering graduate staff should be employed for monitoring these schemes and new as well as old staff should be provided with appropriate transportation facilities such as cars/jeeps etc like staff of Krishi Vigyan Kendras of Punjab Agricultural University, Ludhiana. Engineering Staff should also be provided with latest communication means like mobile phones etc. In Ludhiana district, office of district head of engineering section still does not have even a single computer and is not having a phone also. This office should be given fund to make their own office instead of being there in a rented building. Head of the office should be provided with a laptop computer so that he always has the important information with him