SUMMARY & CONCLUSIONS
5. Summary and Conclusion

5.1. Summary:

Sowing is the principal operation in raising crops. Timely sowing at proper depth interval has profound effect on crop growth and yield. The indigenous methods of sowing seeds like broadcasting or sowing behind the plough are manually metered. In these methods, the spacing between the seeds is not evenly maintained. Besides the skill of the operator is a deciding factor for obtaining good results.

In order to overcome the above constraint, many sowing equipments including the power operated were developed but a few are commercially available. However bullock drawn seed drills are the prime need of the farmers as they offer to own only the draught animals which are the single largest contributor of farm power. In the existing seed drills, there are not modes to adjust the spacing between the rows as well as between the plants, to change the seed rate and to cover the seed and compact die soil after sowing. Most of the seed drills can be used to sow only a specific crop and they are not provided with any transport arrangements.

Hence there is a need to design an improved version of a seed drill to suit the locale. Hence an attempt was made to improve, design and fabricate a seed drill suitable to rainfed farming.

Three different types of bullock drawn seed drills viz., CIAE, GORRU and' TNAIJ were selected and each was compared with traditional method of sowing groundnut (Arachis hypogaea) and sorghum (Sorghum bicolor) which are the major crops under rainfed conditions in Dindigul Anna District, Tamil Nadu. The field trials were conducted adopting completely randomized block design with five replications. All inputs, except the method of sowing were similar for all the trials. Parameters which have direct bearing on the performance of the seed drills were selected and studied. Weightage
for each parameter was given based on its influence on performance of the seeding devices. The observations recorded for each parameter were given a rating. Based on the above indices field performance and the farmers feel bad, TNAU was selected for further study.

However farmers felt the following components of TNAU are to be improved for best results under rainfed conditions, viz.,

- seed hopper
- cut-off lever and power transmission system
- seed-metering
- beam
- furrow closer and
- transport wheel

The seed drill thus improved was subjected to various field and design tests and found useful. The draught performance was tested in llic field and local breeds were found to be able to work with 1SD for the whole day. The overall efficiency factor of ISD was found high when compared with TNAU and GP for sowing rainfed groundnut and sorghum at different field locations. The cost and benefits of ISD and TNAU at different levels of annual utilisation were calculated.

Farmers and extension workers have observed the performance of ISD and expressed that ISD is found suitable for sowing rainfed groundnut and sorghum.

5.2. Conclusion:

The following conclusions have been established by this study.

- Among the selected seeding devices the performance of TNAU was comparatively better and hence chosen for further study.
The components of the TNAU were improved based on the need based suggestions from the farmers who have been using it.

Transport wheel (640mm clia) was provided for easy handling ISO.

Local draught animals are found suitable for handling ISD.

LSD attained highest overall efficiency factor followed by TNAU.

The pay back (years) for ISD was 3.38 for groundnut at the utilisation rate of 1.0 ha/yr whereas it was 3.34 at 7.0 ha/yr for sorghum.

The farmers and extension workers who observed the field performance of ISD felt ISD is suitable for sowing groundnut and sorghum under rainfed conditions, because of proper depth of seed placement, uniformity in seed distribution and coverage ensuring required plant population, more area coverage and higher yield than CP.