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A BRIEF STUDY ABOUT THE FIELD OPERATIONS DURING CROPS SEASON

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ABSTRACT

Accuracy Cultivating (PF) and Controlled Traffic Cultivating (CTF) are notable ideas inside agribusiness, yet the reception pace of these practices by ranchers is still exceptionally low, since ranchers come up short on required abilities or neglect to see the advantages of utilizing these practices. To receive the full rewards, functional arranging should be completed ahead of time for the whole yield cycle, before the harvest season starts. In any case, functional preparation across the whole yield cycle is a non-paltry errand, since the productivity of every not entirely set in stone by a scope of chosen functional elements (e.g., wayline course, functional speed, vehicle limit, wayline succession, and turn type). With that in mind, we present, in this paper, an application that can uphold ranchers with functional preparation of field tasks with CTF, via robotizing the cycle. It gives the rancher an outline of all his field tasks, and goes about as a choice help instrument during the functional arranging process.

KEYWORDS: Cultivation, NPK, Fertilizers, intercrop, harvesting.

INTRODUCTION

The application permits ranchers to store and oversee field and gear data, which is utilized as information, while setting up CTF and creating way lines and course makes arrangements for the singular fields. One of the critical advantages of the application is the given examination highlight, where ranchers can analyze elective arrangements, in light of Key Execution Markers (KPIs). Results from a model field, for tasks with various machine arrangements, are introduced to show how KPIs and perceptions can uphold ranchers during the choice cycle.

Land preparation

The field was ploughed deep, before the monsoons commenced and cross bunds prepared. It was left as such till the rains commenced in July. This facilitated soaking of rain water and checked erosion of soil through runoff. The field was later given two discings to control weeds. One more discing (double) was given after the rains stopped to make good soil tilth. The field was then planked with a wooden bullock drawn planker (Pata) and left undisturbed till sowing.

Fertilizer application

All nitrogen as per treatments and a uniform basal dressing of 40 kg each of phosphorus and potassium was placed 8-10 cm deep in line below the seed before sowing. The urea (N 46%) was used as a source of nitrogen and single superphosphate (P205-16%) and muriate of potash ($K_2$0-60%) as source of phosphorus and potassium, respectively. The placement was done through an iron pipe (pora) attached to the bullock drawn country plough. The fertilizer (N+P+K) was distributed in the plots uniformly to make it available to both the components.

Seed and Sowing

The seed of both crops having over 90% germinability were used for sowing in this experiment. The sowing was done on 6 November in 1989 and on 9 November in 1990. The sowing in both seasons was done when the mean daily temperature was around 21°c. The wheat was sown at the seed rate of 100 kg/ha and for linseed 10 kg seed per hectare was used. The sowing was done in furrows opened with manually operated hand plough and the seed dropped through the iron seed spout (pora) attached to the plough. The seed was placed about 5-6 cm deep and the furrows kept open. For the purpose of convenience the wheat was sown first and linseed thereafter.

Thinning and Gap Filling

Twelve days after the seedlings emerged excess plants were thinned out where necessary. In both the years thinning was to be done only in linseed, the wheat germination was excellent and uniform. There was no need to do gap filling either in wheat or in linseed.

Interculture operations
In both the crop seasons two weedings and two hoeings were done. The weeds were removed manually and hoeings done with rotary hand hoe kept the crop completely free of weeds.

Harvesting and threshing
The crops, wheat and linseed were harvested at their physiological stages of maturity. For convenience and ease of operation, the wheat crop was harvested first and linseed the next. The crops after harvesting were left in the field for one week for sun-drying and weighed, and weights expressed as yield (total produce) q/ha. The threshing was done manually. The grain was cleaned and weighed and weight expressed as grain yield, q/ha. The straw weight was recorded after deducting grain weight from the total produce and expressed as straw yield in q/ha.

GRONTH STUDIES
Pre-harvest studies
Five representative plants (wheat and linseed) were drawn from each treatment, at random. The observations were taken at 30 days interval after the emergence of seedlings. The sampled plants were also used for recording observations on pre-harvest as well as post-harvest studies on various characters mentioned below. The means were worked out and the values represented as the averages for the characters studied.

Plant height
The height of 5 plants chosen was measured (am) from ground surface to the tip of the main shoot. The average was calculated and expressed as height/plant (cm).

Functional leaves
The number of green leaves present on the sampled plants were counted and expressed as number of functional leaves/plant.

POST-HARVEST STUDIES
Effective tillers/branches
The ear bearing tillers of the sampled plants were counted, its number recorded and expressed as effective tillers per metre and branches per plant.

Length of ear
The ear length of the five sampled plants was measured and expressed as ear length (cm/plant).

Capsule numbers
All the capsules present on the five sampled plants were counted and its number expressed as number of capsules/plant Grain number per ear of wheat and per capsule of linseed: All the ears and capsules on the sampled plants were removed. Since the number was very large, a representative sample of 25 ears/capsules was selected from the sampled plant. It was threshed, cleaned and grain number was counted. The average was worked out and expressed as grains/ear and grains/capsule.

Test Weight
For this purpose a small sample of grain from each treatment was drawn from the total produce after harvest. One 1000-grains were counted. The sample was weighed and the weight expressed as test weight g/1000 grains.

Biological yield
The weight of total produce harvested from each treatment was recorded after sun-drying and expressed as yield of total produce, g/ha.

CHEMICAL ANALYSIS
The samples of grain, leaves and straw/ stalk were drawn from each treatment after oven drying. The samples were ground, except the grain of linseed, to 20 mesh and analyzed of N, P and K content. Linseed grain was weighed and used for analysis as such.

NP and K content and uptake
Por estimation of total nitrogen, phosphorus and potassium (%) in various plant parts at different growth stages, a sample weighing 0.50 g was taken. Nitrogen was estimated by modified Kjeldahl's method, P by Vanadomoly- bdophosphoric yellow colour method and K by flame photometer (Jackson, 1967). For estimation of N, P and K uptake in different parts as well as the total, percentage figure was multiplied by the corresponding dry weight value and expressed as uptake kg/ha for total uptake the values for different parts were added and expressed as total uptake, kg/ha.

Protein content and protein yield
Protein (%) in grain was calculated by multiplying the total nitrogen value by the standard factor 6.25 (A.0.A.C. 1960).

$$\text{Protein yield (q/ha)} = \frac{\text{Protein \% x grain yield (q/ha)}}{100}$$

STATISTICAL ANALYSIS
The data collected in the experiment for different characters were subjected to statistical test by following Analysis of Variance Technique suggested by Cochran and Cox (1967). Wherever variance ratio ('F' value) was significant critical difference (CD) values at 5% probability ratios were computed for making comparisons between treatments.

Water use efficiency (WUE)
Water use efficiency (kg/ha/mm) was worked out by dividing economic yield (kg/ha) by the total consumptive use of water (mm) for the entire crop season. In case of intercrop treatment wheat equivalent was considered as economic yield.

CONCLUSION

The discussion perceived that crop expansion is one of the most amazing choices to increment ranch pay prompting food, nourishment and biological security as well as destitution lightening in the locale. Hence, more noteworthy consideration ought to be paid to edit broadening by the legislatures of the locale. Crop enhancement could be moved toward in two reciprocal and intuitive ways; a) flat expansion through extending the harvest base by subbing or adding more yields into the editing frameworks as usually rehearsed by numerous nations of the district; and b) through vertical enhancement in which downstream exercises are embraced to add esteem, demonstrating the phase of industrialization of the harvests and their financial returns. Vertical enhancement is corresponding to flat broadening, and the potential open doors ought to be taken advantage of for item expansion and worth expansion to accomplish most elevated monetary returns. Endeavors have been made by various nations to distinguish high specialty crops, new harvests, slow time of year assortments and creation frameworks, and novel assortments of yields with similar benefit, fundamentally natural products, vegetables and ornamentals, to open up new open doors for ranchers. It was noticed that the advancement of multipurpose species would likewise be helpful for the expansion of agro-handling on limited scope at nearby/public level for efficiency upgrade and extended work open doors.

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