Summary and Conclusion
CHAPTER VI
SUMMARY AND CONCLUSIONS

SUMMARY

The present investigation entitled "STUDIES ON METHOD-CUM-TIME OF SEEDING OF WHEAT IN RELATION TO DIFFERENT METHODS OF RICE PLANTING IN RICE-WHEAT CROPPING SYSTEM." was conducted at the Agri-cultural farm of Shri Durgaji Post Graduate College Chandesar Azamgarh during the kharif season of 2000-01 and 2001-2002. The objectives of the investigation were.

1. To evaluate the effect of different methods of seeding and resultant difference in time of sowing of wheat crop on growth and yield of wheat.

2. To assess the effect of the above factors on wheat crop in rice-wheat cropping system.

3. To find out the comparative efficacy of various methods of sowing and transplanting on yield of rice crop.

4. To Study the economics of cultivation under different methods and time of planting in rice-wheat system.
The soil of the experimental field was loamy in texture with the pH of 8.5, containing 0.0475% nitrogen and 0.3900% organic carbon. The total rainfall received during the respective crop seasons were 1035.30 mm (2000-01) and 1522.70 mm (2001-02) respectively.

Range of temperature in the respective season during crop period was 5.6°C-41.5°C (2000-01) and 3.7°C-40.0°C (2001-02) and range of relative humidity was 24-92% (2000-01) and 16-95% (2001-02) respectively.

The trial consisted of 3 methods of sowing in rice direct dry seeding (M₁), direct wet seeding (M₂), transplanting (M₃) as the main plot treatments and 4 treatments relay seeding (S₁), zero tillage seeding (S₂), conventional tillage and seeding (S₃), reduced tillage and seeding (S₄) as the sub plot treatments, making twelve treatment combinations and was laid out in a split plot design with four replications. The gross plot and net plot sizes were 3.00m×5.5m =16.50 m² and 2.50m×5.00m = 12.50 m² respectively. The seeds of rice were sown on 27.6.2000 dry seeding, 28.6.2000 wet seeding and on 19.7.2000 transplanting in first year and in second year dry seeding on 27.6.2001, wet seeding on 28.6.2001 and transplanting on 19.7.2001.
In wheat crop relay seeding was done on 14.11.2000, zero tillage on 21.11.2000, conventional tillage on 26.11.2000 and reduced tillage on 06.12.2000 in first year and harvesting on 8.4.2001. In second year, relay seeding was done on 16.11.2001, zero tillage on 23.11.2001, conventional tillage on 28.11.2001 and reduced tillage on 8.12.2001 and harvesting on 10.4.2001. The seed rate of direct seeded rice was 100 kg/ha and in transplanting, seed rate was 40 kg/ha. Wheat seed was used 100 kg/ha in zero tillage, reduced tillage and 120 kg/ha in relay seeding, conventional seeding respectively. The important findings obtained from the present investigation in both the years are summarized below.

Among 3 levels of methods of rice planting, dry seeded, wet seeded and transplanted no-significant difference was present in grain yield of rice in first year through crop produced slightly more. But in second year transplanted produced significantly higher grain yield in comparison to dry seeded and wet seeded treatments. Similarly straw yield and harvest Index was found not significant due to methods of planting.

In wheat zero tillage produced significantly taller plants at different days after sowing in the both the years. Zero tillage also significantly produced greater number of green leaves per plant at
different days after sowing in both the years. It was also superior over other methods in production of largest leaves in both years of experimentation. Maximum shoot dry weight was recorded following zero tillage which gave significantly higher linear increase in dry shoot weight per plant at 60, 90, 120 DAS. All the yield attributing and maturity characters. viz, No. of productive tillers/plants, ear length (cm), number of ears/plants, number of grains/ears, 1000 grain weight (g) were also significantly increased with zero tillage. Since grain yield is the additive complimentary effect of growth and yield attributing parameters. Zero tillage was found significantly superior than other treatments in this respect also in both years reduced tillage occupied second position. Zero tillage showed the highest straw yield in comparison to other treatments in both years.

Harvest index was also highest with zero till crop during both years of experimentation.

Protein content of wheat grains was found to be highest in zero tilled plots.
CONCLUSION

The following conclusions can be drawn on the basis of the results observed during the present investigation.

1. Methods of rice planting did not have consistent effect on the yield of rice crop.

2. Rice planting methods did not show any uniform pattern of impact on succeeding wheat crop also. But transplanting had been effect on wheat.

3. Among wheat seeding methods, zero-till significantly increased crop growth in comparison to other methods, i.e. reduced-tillage, relay sowing and conventional tillage. Plant height, number of green leaves, leaf area index, number of tillers and shoot dry weight were highest in zero-till plots.

4. The classical yield components i.e. yield attributing characters were also significantly positively affected by zero tillage, productive tillers, ear heads per plant, length of spike, number of grains per spike and test weight of grains were all significantly found to have increased in zero-till plots over other methods.

5. Grain and straw yield were obviously increased significantly under zero-tillage over other methods.
6. Harvest index of the wheat crop was also positively affected by zero-till condition.

7. Protein content of grains was also highest with zero-tillage.

8. Reduced tillage was observed to stand next in proficiency after zero-tillage and was better than relay seeding or conventional practice.

9. Same trend of response was observed during both years of experimentation.

10. No-significant interaction was observed between rice planting methods and wheat seeding methods in the system.

11. Zero-till wheat cultivation after transplanted rice in rice-wheat system has been found to be most profitable.