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Learnings from an Agro-Industrial Internship at Corteva Agriscience

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Agriculture plays a pivotal role in supporting livelihoods and ensuring the food security in India. Among the various crops rice is one of the most widely cultivated and also an essential food crop, however rice cultivation faces several challenges and one of the most significant among them is weed infestation. Weeds grow along with the crops and compete for the essential resources such as for nutrients, water, sunlight and space this competition directly affects crop growth and reduces the yield. Traditionally farmers managed the weeds through manual weeding or mechanical methods hence those methods are effective but that require large number of labor power, time and cost. In the recent years, labor shortages and wage rates are increasing drastically which made manual weeding less practical. As a result, farmers have started adopting herbicides as an alternative solution to control the weeds. Herbicides provide faster and more efficient weed control but their effectiveness depends on proper selection, timing and application. In this context, agricultural companies play an important role in guiding farmers. My 10 days Agro-industrial internship in Corteva Agriscience gave me the opportunity to understand how farmers awareness programs and field-level support help improve weed management practices.

Internship Experience and Field Activities

During the internship, I worked under the guidance of Market Development Officers (MDO) and actively participated in field-level activities across different villages in Ranipet District.

Each day began with farmers field visit; these visits helped me to observe real farming conditions and to understand the challenges faced by our farmers (Figure 1). I collected important information such as farmer details; landholdings size and cropping pattern and agrochemical usage. This process gave me a clear idea about how farmers make their decisions regarding crop protection. Direct interaction with farmers formed a major part of my internship and I explained the importance of proper weed management and how herbicides can improve the efficiency compared to that of manual methods and also, I insisted the farmers about the correct timing and method of herbicide application. Communicating in a simple and understandable way was very important as many farmers were not familiar with the technical terms. In addition to the individual interactions, evening group meetings were organized in villages. These meetings created a platform to address multiple farmers at once. During these sessions, we explained product details and discussed common mistakes in herbicide usage and clarified the doubts, farmers activily participated and shared their experience which made the sessions more interactive and useful. Another important activity was conducting demonstrations trials in selected fields, these trials were mainly carried out in farms with larger land areas so that results could be clearly observed. Herbicides were applied under real field conditions and farmers were able to see the difference in the weed control over time, this practical demonstration played a key role in building farmer confidence.

Figure 1: Interaction with farmers

Herbicides and Practical Understanding

During the internship, I gained the practical knowledge about two important herbicides used in the rice cultivation which are Novlect and Coreon (Table 1). Novlect herbicide is recommended for Direct Seeded Rice (DSR) cultivation, it is a systemic post emergence herbicide containing Florpyrauxifen-benzyl and Cyhalofop-butyl as active ingredients and the recommended dosage is 500 ml per acre. The herbicide should be applied during 15-20 days after sowing or at the 2-5 leaf stage of weeds. Coreon herbicide is suitable for Transplanted Rice (TPR) cultivation, it is a broad-spectrum pre-emergence herbicide thar controls grass, broadleaf and sedge weeds. Coreon contains two active ingredients Penoxsulam (0.97% w/w) and Butachlor (38.8% w/w SEF). It should be applied between 1-7 days after transplanting by mixing the herbicide with sand and broadcasting it uniformly in the field and the recommended dosage is approximately 800 ml per acre. Understanding the difference between these two products helped me to learn how weed management strategies vary depending on the cultivation method.

Table 1. Comparison between the Novlect and Coreon Herbicides

Feature	Novlect Herbicide	Coreon Herbicide
Crop system	Direct Seeded Rice (DSR)	Transplanted Rice (TPR)
Type of Application	Post-emergence	Pre-emergence
Mode of Application	Systemic Herbicide	Broad-spectrum Herbicide
Active Ingredients	Florpyrauxifen-benzyl-cyhalofop-butyl	Penoxsulam + Butachlor
Target weeds	Mainly emerged weeds	Control grasses, broadleaf weeds and sedges
Application Timing	15-20 days after sowing or 2-5 leaf stage of weeds	1-7 days after transplanting
Application Method	Spray application	Mix with sand and broadcast uniformly
Recommended Dosage	500 ml per acre	800 ml per acre
Best use case	When the weeds already emerge in DSR fields	Prevent the weed emergence early in TPR fields

Key observations and Insights

During the internship, field level interaction revealed that many farmers face the difficulties due to improper herbicide recommendation from some agrochemical dealers. In the certain situations, dealers recommending two to three herbicides instead of a single effective herbicide in order to increase their profit margins, due to this practice increased production costs for the farmers. And through farmers awareness programs, the benefits of using scientifically recommended herbicides were explained. And farmers were educated about the advantages of Novlect and Coreon for the effective weed control in the rice cultivation systems. Farmers with larger landholdings showed a greater willingness to adopt the herbicides because they face higher labour challenges. At the same time small scale farmers were more cautious due to cost concerns

Learnings and Conclusion

This internship gave me a chance to experience the real farming conditions closely and I got to see how things actually work in the field. One important thing that I learned is communication is the important, farmers understand and accept the ideas better when we explain them with a simple and clear way. Also, I noticed that field demonstrations are very effective, farmers usually trust what they see with their own eyes and when they observe results directly in the field farmers will feel confident about trying the new ideas. During this internship, I was able to connect my theoretical knowledge with the real time farming practices and this experience helped me in boosting my confidence. Overall, this internship helped me to think practically and understand the real agriculture situations in a better way.

Acknowledgement

I would like to express my sincere gratitude to Corteva Agriscience for providing me the opportunity to complete my internship successfully. Using this experience, I gained practical knowledge and to develop a clear understanding of the real time field conditions of the agriculture, and extend my heartfelt thanks to Market Development Officers (MDO) for his constant guidance and support throughout the internship. Also, I would like to thank VIT School of Agricultural Innovations and Advanced Learning (VAIAL), VIT University, Vellore for encouraging me to take up this internship.

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