

## INFORMATION ON Ph.D DISSERTATION

**Dissertation title:** Research on technical measures to immediately replant Robusta coffee (*Coffea canephora* Pierre var. *robusta*) in Dak Lak province.

**Field:** Crop Science

**Code:** 62.62.01.10

**Full name of Ph.D student:** Hoang Quoc Trung

### I. SUMMARY OF THE Ph.D DISSERTATION

#### 1. Aims of the dissertation

The dissertation was conducted to evaluate the effectiveness of some technical measures such as soil treatments, chemical combined biological measures to control nematodes and root-damaging fungus, and evaluate the nematode resistance of some rootstock cultivars. On that basis, effective technical measures have been determined to immediately replant Robusta coffee.

#### 2. Research contents of the dissertation

- Determine the appropriate soil treatment measures before immediately replant Robusta coffee in Dak Lak province.

- Identify measures to control nematodes and harmful fungus causing damage to immediately replant Robusta coffee in Dak Lak province.

- Evaluate the nematode resistance of some rootstock cultivar for immediate replant Robusta coffee in Dak Lak province.

### II. INNOVATIVE CONTRIBUTIONS OF THE DISSERTATION

- Treatments used *Ethoprophos* + *Copper hydroxide* and used preparations *Trichoderma* spp. + *Paecilomyces* spp. had the lowest nematode density after 12 months, about 70% of decreasing in nematode density compared to the control. The additions of preparations helped to reduce amount of *Fusarium* spp. in soil after 12 months treated, approximately 80,0% compared to the control treatment.

- Chemical combined biological methods significantly reduced the density of nematodes in soil and roots, valued at <80 individuals/100 g of soil and <30 individuals/5 g of roots after 24 months. The occurrence frequency of *Fusarium* spp. in roots was approximately 20,0% compared to the control treatment was 71,1%. Therefore, the proportion of infected plants ranged from 15,6% to 28,9% compared to the control was 57,8%; the percentage of death plants from 6,7% to 17,8% in the comparison with control treatment valued at 40,0% after 24 months of replanted. CT4 (Vimoca 10 G + TKS - NEMA) has the lowest proportion of infected plants and death plants after 24 months of replanted.

- The nematode resistance of 10/24 and 34/2 rootstock cultivars had reduced the density of nematodes in root by 42,5% - 60,0%, reduced the occurrence frequency of *Fusarium* spp. in roots from 45,5% to 69,2% in the comparison with the control after 24 months. Thereby, the proportion of infected plants and death plants about 50,0% reduction compared to the control treatments TR4 cuttings and TRS1 seedling. Treatment used 34/2 rootstock cultivars grafted with TR11 had the lowest proportion of infected plants and death plants after 24 months of replanted, valued at 20,0% and 6,7% respectively.

### **III. APPLICATIONS/APPLICATION POSSIBILITIES IN PRACTICE, ISSUES NEED FURTHER STUDY**

- The research results are the scientific basis to complete the current Robusta coffee planting and replanting process, contribute to building and supplementing the scientific database system for coffee trees, especially replant coffee.

- The research results when applied will help shortening the coffee rotation time to re-production, increase the sustainability of the Vietnamese coffee industry. In addition, it contributes to ensuring successful replanted coffee, saves investment costs. Thereby, it help to generate early income and stabilize the life of coffee growers, contribute to socio-economic stability.

- The research results only monitor the technical measures affecting on Robusta coffee in vegetative stage. Therefore, it is necessary to research and monitor the impact of technical measures on immediately replant Robusta coffee in mature stage.