

Effect of fertigation on growth and physiology in coriander

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ABSTRACT

The effect of fertigation on growth and physiology in coriander was carried out in two coriander genotypes Co CR-4 and CS 11 for two seasons. Drip fertigation with water soluble fertilizer at 125 %, 100 %, 75 % RDF along with recommended normal fertilizer was carried out in the year 2007. Dry matter production was favourably influenced by different levels of fertigation. Among the fertigation levels, fertigation with 125 per cent water soluble fertilizers had registered increased leaf area index and higher dry matter production in both the genotypes. The maximum fresh leaf weight and leaf dry weight was recorded in Co CR-4 with 125 per cent of fertigation (T_1V_1) in all the stages of the crop growth

Key words : Coriander, Fertigation, Growth, Physiology

Coriander (*Coriandrum sativum* L.) is a annual herb with several branches and lacy leaves with jagged edges belonging to the family Apiaceae. It is native of Mediterranean region. This aromatic herb is found in many parts of the world. In India, coriander is mainly cultivated in Rajasthan and Gujarat with a sizeable acreage in Madhya Pradesh, Haryana, Punjab, Uttar Pradesh, Andhra Pradesh, Tamil Nadu and Bihar. It is cultivated in an area of 3,40,400 ha with the production of 2,23,400 tonnes (Anon., 2006). Rajasthan alone shares 40-45 per cent of the area and production. To produce a high yield of best quality coriander leaves, timely application of nutrients is a pre-requisite. Among the sophisticated hi-tech methods practiced, drip irrigation has proved its superiority due to direct application of water in the vicinity of root zone. Fertigation technology remarkably increases the efficiency of the applied fertilizers thus economizes the quantity of fertilizers and water, and the cost of labour and energy resulting in reduced cost of cultivation. Adoption of advanced and efficient methods of application of water and fertilizers will have saving upto 50 per cent fertilizer usage (Shiva shankar, 1999).

Hence, the present investigation was taken up, to find out the influence of fertigation on growth and physiology of coriander Co CR-4, CS 11.

MATERIALS AND METHODS

Out of 27 genotypes (leafy types) maintained in the Department of Spices and Plantation Crops, Horticultural College and Research Institute, Coimbatore, two genotypes (Co CR-4, CS 11) were selected for this study, as the genotypes proved well for use as leafy type.

The experiment was conducted at the University

orchard of Horticultural College and Research Institute, Tamil Nadu Agricultural University, Coimbatore

The experiment was laid out in FRBD design with 4 treatments replicated thrice. The following treatments were employed for the study.

T_1 - Drip fertigation with water soluble fertilizer at 125 % RDF

T_2 - Drip fertigation with water soluble fertilizer at 100 % RDF

T_3 - Drip fertigation with water soluble fertilizer at 75 % RDF

T_4 - Recommended normal fertilizer applied to soil with furrow irrigation

RESULTS AND DISCUSSION

The plant which received water soluble fertilizers through fertigation significantly influenced the growth and physiology in coriander especially leaf area index and leaf area ratio at 35 DAS (Table 1). Application of 125 per cent RDF (T_1) recorded the maximum leaf area index during first and second season, respectively at 45 days. The lowest leaf area index was recorded in the treatment applied with recommended NPK applied to soil with furrow irrigation (T_4). The variety Co CR-4 combined with 125 per cent of fertigation (T_1V_1) showed maximum leaf area index in all the stages of the crop growth in both two seasons.

The treatments had a significant influence on fresh leaf weight and leaf dry weight at all stages of observation (Table 2 and 3). At 35 DAS, application of nutrients through fertigation significantly influenced the fresh leaf weight. Application of 125% RDF (T_1) recorded 6.45 and 6.24 g in first and second season, respectively.