J Plant Pathol Microbiol 2017, 8:5 (Suppl)
DOI: 10.4172/2157-7471-C1-006

Seasonal effects on nodulation and nitrogen assimilation behaviour of seeding *vis-à-vis* cutting raised plants in shisham (*Dalbergia sissoo*)

Rayees Afzal Mir, S P Chaukiyal and S Nautiyal
Glocal University, India

At the seedling stage, a small amount of N is required to boost growth of leguminous plants. A pot experiment was conducted to observe the effect of N fertilizer on various growth parameters and nodulation behavior of *Dalbergia sissoo* under nursery conditions. After the establishment of seedlings and cuttings, four nitrogen treatments, 0, 10 and 20 kg·ha−1 N were applied in two equal splits. Monthly observations were taken for the nodulation and nitrogen assimilation behavior. Highest nodule biomass per plant was observed in the month of August in all the treatments. Among different N treatments, highest and lowest nodules were observed in 10 kgN/ha and control respectively in all three seasons. However, no nodules were observed during the months of January and February. However, significantly higher values were observed in 10 kg N/ha treated plant in cuttings than seedling-raised plants during rainy season. The highest percent leaf N was recorded in 10 kg N/ha in the month of April, whereas, the lowest N percentage in case of control in the month of March in both cutting and seedling raised plants, respectively. 10 KgN/ha and 20 kg N/ha treatment were significantly higher as compared to control in both cutting as well as in seedling raised plants. Significantly higher values were observed in summer season as compared to rainy and winter. The total leaf N contents (mg/g) increased progressively from April to August followed by a decrease in the subsequent months. Highest values were observed in 10 kg N/ha in the month of August in cutting raised plants and lowest in control in seedling raised plants. Among the different N treatments highest values were observed in 10 kg N/ha, followed by 20 kg N/ha as compared to control in the month of August in both cutting as well as seedling raised plants. Lowest N percentage was recorded in the month of February. A significantly higher N content were observed in rainy and summer season as compared to winter. 10 Kg N/ha treatment was significantly better than other treatments in both types of plants. In nodule, highest N percentage was observed in the month of April and lowest in the month of December. Among different nitrogen treatments, highest N content was observed in the month of July in 10 kg N/ha and lowest in December in 20 kgN/ha. However, the nitrogen treatment effects were observed to be non-significant. In case of total nitrogen content per plant, the highest values were recorded in the month of August and lowest in the month of January. 10 kg N/ha was observed to be more effective than other treatments in all the plant parts. Rainy season seems to be more favorable as compared to summer and winter in both types of plants.

rayees@theglocaluniversity.in
Raies.afzal@gmail.com