Lithium as anon-radioactive tracer in maize - legume intercropping system

A technique for investigating the rooting pattern of species intercropped is described which uses lithium as a non-radioactive tracer. The technique has been tested on pure and mixed stands of maize and five other legumes, *viz. Vigna radiate, Phaseolus vulgaris, Phaseolus aureus, Psophocarpus tetragonolobus* and *Arachis hypogaea*. The treatments were replicated six times and arranged in randomized complete block design of the experiment. At the 3 – 4 leaf stage of maize, 10 mL of 2.5% LiCl solution was shared between four different locations equidistantly placed within the pot and at 8.0 cm depth.

Plants were harvested at soil level 14 days after lithium application. Each species was separated, dried in an oven and the dry weight was recorded. Dried plant material was ground and lithium concentration was determined using a flame analyzer.

The shoot dry matter yields of maize in pure stands were significantly greater than that in mixtures ($P.<0.001$) except the maize /winged bean combination. Among the legume

species, only *P. aureus* and *A.hypogaea* showed the greater dry weight values in pure stands compared to the mixed. But the lithium concentrations in any of the species did not show any significant effect between pure and mixed stands. These results suggest that the dry weight difference is mainly due to shoot competition and there is a greater root competition in all the species.