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Participants



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Abstract

Soybean improvement in the tropics & subtropics

Soybean is a major source of vegetable oil for human consumption and industrial uses and of protein for humans and livestock. Soybean is also useful in cropping rotations because of its ability to fix nitrogen. In Australia, production and yields are variable due to weather and prices and we remain a net importer. Because most varieties are quantitative, short-day plants, with large differences in response to photoperiod and temperature, they often have narrow adaptation across regions and seasons. The long-juvenile (LJ) trait has allowed development of varieties with broader adaptation. The LJ trait has also helped 'convert' temperate semi-dwarf and culinary varieties to subtropical/tropical adaptation. Collaborative studies in Thailand and Vietnam show the LJ trait is also useful for raising yield potential in short duration varieties in intensive rotation systems. Generally, soybean is more drought-sensitive than the other tropical grain legumes. Limited progress has been made in breeding truly drought-tolerant varieties, apart from better matching of maturity to available water. Traits that enhance leaf area maintenance may improve recovery after stress and so may improve drought-resistance in rain-fed crops exposed to intermittent stress. In contrast to other grain legumes, soybeans are generally tolerant of saturated soil conditions, to the extent that rice-soybean intercrops are possible where the watertable can be reliably controlled.

Biography

Bob Lawn is Professor of Tropical Crop Science at James Cook University, and Honorary Fellow with CSIRO Plant Industry, in Townsville, north Queensland. He has 45 years experience in tropical crop improvement and sustainable tropical agriculture, and has published > 260 scientific articles on these topics. Prior to his current role, he was Director of the CRC for Sustainable Sugar Production 1994-2003 and before that, led the CSIRO

Tropical Crops Program. Bob's main research focus has been the physiological basis of genotype x environment interaction in crop plants and the implications for agronomy and breeding. His main crops of interest are the tropical grain legumes (soybeans, mungbeans, black gram, pigeonpea, cowpea) and sugarcane and his primary environmental focus has been climate (photoperiod, temperature, water, radiation). He has worked on many projects for various national and international agencies in south-east Asia, including Jawa, Sulawesi Selatan, Sumatera Selatan and Nusa Tenggara Timur in Indonesia.