
Seed Coat Colour Development in Black Beans

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Abstract

Dry beans come in a wide variety of seed coat patterns and colours and the quality and value of the bean crop is largely determined by appearance and condition of the seed, particularly colour uniformity and stability. In western Canada, black bean is a significant portion of the crop. For some black bean varieties, the seed coat colour does not fully develop until the pod is mature. This may be the result of genotype, or environment, or both. In these cases, harvesting at plant maturity rather than at seed maturity can lead to a non-uniform crop sample in which the black beans are mixed with beans that have a purple or gray tinge. Full expression of seed coat colour is economically important as variable colour development may result in a 2-4 cent per pound discount. Seed coat colour is determined by the presence of anthocyanins and condensed tannins. In this experiment, we examined the timing of pigment deposition in the seed coat in relation to pod maturity for 5 black bean varieties (CDC Espresso, CDC Nighthawk, CDC Jet, AC Black Diamond, and T39) to determine if there is genetic variation for timing of seed coat colour development. If it is under genetic control, we will be able to breed for earlier colour development to ensure full colour expression at plant maturity.