



NUMBER OF RIPEN FRUIT ON SPIKE FOR BETTER TIME TO HARVEST OF CASTOR BEAN



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ABSTRACT

Seed maturation is a phase of development that plays a major role in the storage reserve composition of a seed, include Castor Bean. Since castor-oil is largely used in industries, it is of the almost importance to harvest the crop at the proper time. This reseacrh was studied four different seed maturation stage at the time of harvest, which is indicated by number of ripen (dry) fruit on spike, i.e. 25%, 50%, 75%, and 100%. The result showed that the 75% of number of ripen seed on spike is the best time indicator for harvesting castor seed, owing to this phase of fruit ripening, castor seed has highest oil content and seed weight while lower water content, and also no sheeding seed.

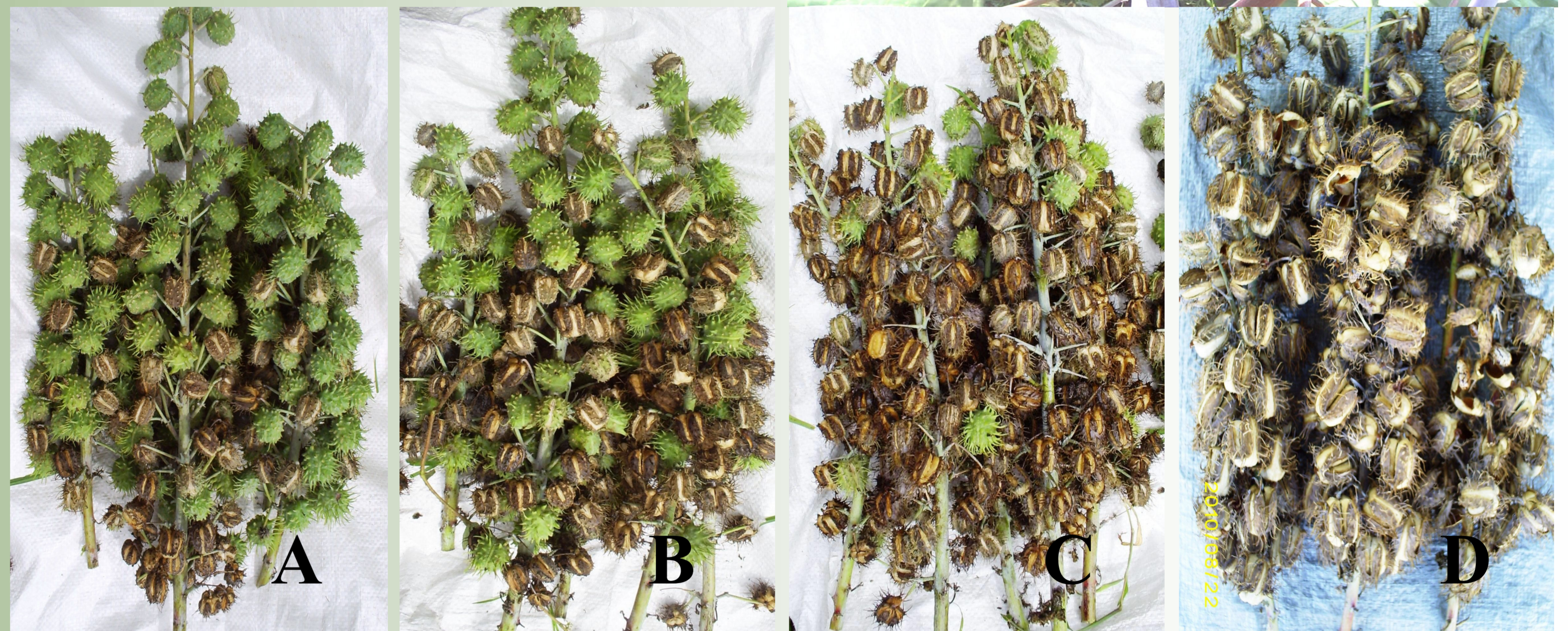
Key words : maturation, seed oil content, seed production

INTRODUCTION

Since the harvest time is critical event to meet good quality of seed and also quantitative yield *Ricinus communis* (castor bean), therefore criteria for better time of harvest time have to investigate. Some references stated that, highest yields are obtained where the clusters are harvested at maturity, tied in bundles and hung to dry, but normal practice for farmer is to harvest the crop when a few fruits on each spike ripen. The many immature seeds harvested in the process reduce the quality and quantity of the crop. Therefore, what ripe stages is the best quantitative indicator for time to harvest the castor bean ?

MATERIALS AND METHODES

Randomized Blocked Design was used in this research with three replications of treatments consisted of four different maturation stages of seed at the time of harvest, which is indicated by number of ripen (dry) fruit on spike, i.e. 25%, 50%, 75%, and 100% (as shown at the picture). Each experimental unit consisted of 25 trees, and the main and primary spikes were subjected to spikes treatment and seed analysis.



A = 25%, B = 50%, C = 75%, D = 100% number of ripen fruit to total fruit on spike



primary spikes

main spikes

primary spikes

RESULT AND DISSCUSSION

Dry seed masses, fatty acid (oil content), and water content were measured in all four treatment of maturation stages (Table 1.). Both dry seed mass oil content increased throughout maturation and ripening stages and were decreased at the stage of over ripe (100% number of ripen seed on spikes). While the water content decreased during seed maturation. It was found that with 25% of fruits on spike dry, the seed oil content is lowest (51.8%), and the higesth seed oil content was found at

Number of Ripen Fruit on Spike (%)	Dry seed weight/spike (g)	1,000 seed weight (g)	Seed oil content (% - w/w)	Seed water content (% - w/w)
A = 25	80.6 ± 5.275	464.5 ± 6.723	51.8	9.7
A = 50	83.8 ± 3.446	478.3 ± 4.243	60.7	8.2
A = 75	86.3 ± 2.821	471.2 ± 3.516	64.1	6.5
A = 100	84.7 ± 1.539	447.8 ± 2.875	63.3	5.7

Highest yields are obtained where the clusters are harvested at maturity, tied in bundles and hung to dry (Baldwin and Cossar, 2009). The many immature seeds harvested in the process reduce the quality and quantity of the crop. As we already known that, the local castor varieties (Beaq Amor) are usually shedding varieties. Therefore, if the spike is allowed to stand untill all the fruits are dry (ripen), there is a danger of some of them break and shedding the seed. Then, the cultivators should harvest the spikes before all the fruits are dry or it is not necessary to delay harvest till all the fruit on a spike are dry. Therefore, we chose to focus our study on the 75% of number of ripen seed on spike is the best time for harvest castor seed. In this phase of fruit ripening, castor seed has highest oil content and also seed weight while lower water content.

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