
Breeding Lines of *Phaseolus vulgaris* with
Typical Red Node Symptoms

John J. Kolar
University of Idaho
Research and Extension Center
Kimberly, Idaho

In 1980, several single plant selections from a cross of Emerson x (PI226856 x UI 76) showed typical red node symptoms. PI226856 is a small white accession from Spain with resistance to BCM and BYM. For the past four years, all descendants of these single plants have exhibited the red node characteristics.

Early symptoms become discernable prior to flowering with reddening of nodes and pulvini of leaves. Reddening of plant tissue progressively continues, with the entire lower stem and pods becoming conspicuously affected before maturity.

If in fact the symptoms observed in these plants were caused by red node virus, this would indicate a high degree of seed transmission. This is very unlikely since beans in adjacent plots show no infection. Hence, it is assumed that the condition can be attributed to genetic factors leading to physiological breakdown as described by Harter and Zaumeyer (1944).

Harter, L. L. and W. J. Zaumeyer. A Monographic Study of Bean Diseases and Methods for Their Control. USDA Tech.B.868. June, 1944.

SOIL WATER USE BY RELAY-CROPPED AND MONO-CROPPED BEAN (*Phaseolus vulgaris* L.)

Cleber Morais Guimarães, Rogério Faria Vieira &
Tomás de Aquino Portes
National Research Center for Rice and Bean (CNPAP)
Postbox 179 - 74.000 Goiânia, GO - BRAZIL

The purpose of this study was to determine if a meaningful relationship could be established between relay-cropped and mono-cropped beans and soil water use. Two bean cultivars were used: Paraná 1 and Preto Caruaru, type 2 and type 3 plants, respectively.

Figure 1 shows the relationships between relay-cropped and mono-cropped beans and soil water depletion at depths of 0 to 20, 20 to 40, 40 to 60, and 60 to 80 cm. The measurements were made at vegetative growth stage, flowering, pod filling, and pod maturity. It was found that soil water content was lower in relay-cropping during the vegetative growth stage, probably due to corn transpiration. At this time the corn was not totally mature. At flowering the soil moisture content under relay-cropping and mono-cropping was similar, with a tendency towards higher soil moisture content under relay-cropping. After flowering soil moisture was higher in relay-cropping, probably due to lower atmosphere demand for water, there was a significant difference between the cultivars concerning water depletion and this difference increased or decreased depending on the cropping system. The difference in water depletion was primarily attributed to the higher leaf area index (LAI) of Preto Caruaru.

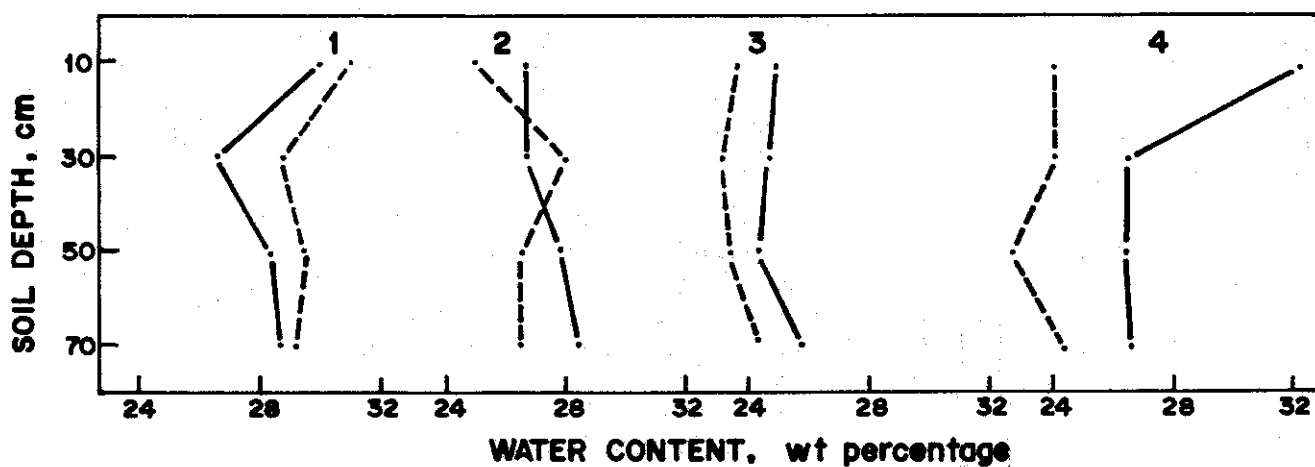


Figure 1. Soil water content measured at depths of 0 to 20, 20 to 40, 40 to 60 and 60 to 80 cm, during the vegetative growth stage (1), flowering (2), pod filling (3) and pod maturity (4), from two cropping systems: relay-cropping (—) and mono-cropping (---).

TABLE 1. Average 0-80 cm soil water content (wt percentage) for two cropping systems, relay-cropping and mono-cropping, two cultivars of beans, Paraná I and Preto Caruaru.

CULTIVARS	CROPPING SYSTEM	
	Relay-cropping*	Mono-cropping*
Paraná	27.4 a	26.2 a
Preto Caruaru	27.0 b	25.6 b