

RELEASE OF PINTO GH-196 and JM-126, PINK UNS-117 and 6R-42,  
and GREAT NORTHERN JM-24 DRY BEAN GERMPLASM

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Five advanced dry bean breeding lines (Phaseolus vulgaris L.) were released 7 October 1986 by USDA-ARS and the Agricultural Experiment Station of Washington State University. They include unique advanced-generation selections in three market classes.

Pinto GH-196 is an F<sub>5</sub> selection (now in the eleventh generation) from the parentage, Pinto UI-114/2/Pinto UI-114/PI 203958/3/Pinto UI-114/4/Red Mexican UI-35/PI 203958/5/red-seeded early-maturing Japanese bush bean (name unknown). GH-196 has uniform seeds similar to but slightly smaller than those of UI-114. It produces a heavy midset of pods on a moderately spreading vine. It matures 90 to 95 days from planting. It is consistently one of the highest-yielding selections under stresses of Fusarium root rot (caused by Fusarium solani (Mart.) Appel and Wr. f. sp. phaseoli (Burk.) Snyder and Hans.) and drought. It produced the highest average seed yield across 17-19 locations among many entries in the Cooperative Dry Bean Nursery in 1984 and 1985. It is not only resistant to Fusarium root rot, but also to curly top virus (CTV) and to all known strains of bean common mosaic virus (BCMV) in North America. GH-196 also gave a resistant reaction (necrotic local lesions) when inoculated with exotic strains of BCMV, NL-3 and NL-5, in greenhouse tests. Another exotic strain of BCMV, NL-4 (Mexican), caused mild mosaic in GH-196.

Pinto JM-126 is an F<sub>6</sub> selection from the parentage Pinto NW-410/2/Nep II/NW-410. Nep II is a white-seeded strong bush bean that carries the dominant "I" gene for resistance to BCMV, developed in Costa Rica. JM-126 is unique among pinto beans in having "I" gene (hypersensitive) resistance to BCMV. It is also resistant to CTV and tolerant of Fusarium root rot. JM-126 matures in 95-100 days, has large leaves, and an erect to sprawling indeterminate plant habit. When it sprawls, it seems to be more susceptible than other pinto beans to Sclerotinia wilt. JM-126 produces attractive large, plump seeds (2.5-2.8 seeds/g). The leaves and seeds of JM-126 are measurably larger than those of either parent, indicating transgressive segregation for these characteristics.

Great Northern JM-24 is an F<sub>6</sub> selection (now in the eleventh generation) from the same parentage as Pinto JM-126. JM-24 is unique in having plump, white great northern-size seeds (2.9-3.1 seeds/g) on a short upright indeterminate bush-vine resistant to CT and to BCMV on the basis of the "I" gene. In inter-regional Cooperative Dry Bean Nurseries of 1982 and 1983, JM-24 was one of the highest yielding great northern. Under stress of Fusarium root rot JM-24 is consistently among the highest-yielding selections in its market class. It usually matures about 95 days after planting.

Pink UNS-117 is an F<sub>10</sub> selection (now in the twelfth generation) from the parentage Viva/3/Pinto UI-114/Luna Pinto/2/PI 203958. Luna Pinto is a bright-seeded dryland pinto cultivar developed at New Mexico State University. Seeds of UNS-117 are larger (2.7-2.9 seeds/g) than most pink beans, and uniform in size and color. UNS-117 is consistently one of the highest-yielding beans under all conditions in which it has been tested. In the 1985 Cooperative Dry Bean Nurseries at 17 locations in the United States and Canada, it was the highest in average seed yield among 41 entries. UNS-117 is among the most tolerant of beans to Fusarium root rot and drought. Also, it is resistant to CTV and BCMV, having the same virus response pattern as Pinto GH-196. UNS-117 has compact, upright, indeterminate bush vines with midset long pods. It matures in 85-95 days.

Pink 6R-42 is an F<sub>6</sub> selection (now in the twelfth generation) from the parentage Viva Pink/4/Sutter Pink/3/Red Mexican UI-35/PI 203958/2/Red Mexican UI-35. Pink 6R-42 is unique in its excellent uniform and persistent seed color. This seed characteristic could be related to the fact that 6R-42 is relatively late-maturing with larger vines and more foliage covering the pods than occurs with most pink beans, leading to less "sunburn" of pods and seeds than occurs in earlier-maturing beans. Pink 6R-42 yielded well at most locations in the 1985 inter-regional Cooperative Dry Bean Nursery. Among BCMV strains known to occur in the United States, 6R-42 appears to be susceptible only to the mild Western strain. It is resistant to CTV.

The suggested uses of these breeding lines are: 1) possible testing and selection for direct use as new cultivars; and 2) sources of genes for resistance to CT, BCMV, and Fusarium root rot, and for yield and seed quality potential.

Small amounts of seed of these selections may be obtained from Dr. M. J. Silbernagel, USDA-ARS, Irrig. Agric. Res. & Ext. Center, P. O. Box 30, Prosser, WA 99350.