

Plants of USWA-27 are upright, lodging resistant, and have unprotected dominant *I* resistance to BCMV, and complete resistance to CTV (presumed to be due to two dominant epistatic genes). In 1995 replicated yield trials at Othello, WA, USWA-27 matured 102 days after planting and yielded 4132 pounds per acre. Seeds of USWA-27 are black and white mottled, plump and medium sized with 1507 seed per pound. USWA-27 should be useful to breeders who want to modify this novelty germplasm for wider adaptation and production.

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RELEASE OF THREE LARGE-SEEDED, VIRUS-RESISTANT KIDNEY DRY BEAN BREEDING LINES, USWA-33, USWA-39, AND USWA-70

The Agricultural Research Service, U. S. Department of Agriculture, and the Agricultural Research Centers of Washington State University, the University of Idaho, and Oregon State University announce the release of three kidney dry bean germplasm lines that are resistant to viruses and have a large seed size. They are in light red kidney (USWA-33), dark red kidney (USWA-39), and white kidney (USWA-70) dry bean classes.

Complete resistance to all strains of bean common mosaic virus (BCMV) and curly top virus (CTV) are needed in the bean seed production areas of the arid western states. Although these resistances are already available, the existing materials need improvements in seed size, seed color, and/or earlier maturity. These three releases were developed by Dr. Matt J. Silbernagel, Research Plant Pathologist (retired), USDA-ARS, and Dr. An N. Hang, Agronomist, Washington State University. Both are located at the WSU-Irrigated Agriculture Research and Extension Center, 24106 N. Bunn Road, Prosser, WA 99350-9687.

USWA-33 (seed lot 95-2166) is an F_{10} derived F_{13} bulk with an upright bush habit from the cross 84BR-1122/K-42. USDA breeding line 84BR-1122 was a root rot tolerant selection from bush snap bean 'Contender', and K-42 is a bush, light red kidney germplasm release developed by Dr. D. W. Burke (USDA-ARS, Prosser, WA). USWA-33 has complete resistance to CTV (presumed to be due to two dominant epistatic factors) and *I bc-1* resistance to BCMV. USWA-33 is similar in yield (2421 pounds per acre) to the commercial 'Kardinal' (2574 pounds per acre), but matured in 100 days versus 105 for Kardinal. In addition, Kardinal averaged 878 seed per pound, while USWA-33 averaged 809 seed per pound in 1995 replicated trials at Othello, WA.

USWA-39 (seed lot 95-2172) is an F_3 derived F_7 bulk with an upright bush habit from the cross 'Montcalm'/K59-7. Montcalm is a very popular commercial cultivar developed by Michigan State University that has long been the standard for the dark red kidney found in salad bars; however, its yields are generally less than desired. Germplasm line K59-7 is a CTV-resistant light red kidney developed by Dr. D. W. Burke. Both parents have dominant *I* resistance to BCMV, and an intermediate level of resistance to halo blight. USWA-39 also has *I* resistance to BCMV and complete CTV resistance. Reactions to halo blight have not been tested, but since both parents are halo blight tolerant it would be expected that USWA-39 have similar field tolerance to halo blight. In the 1995 Othello replicated yield trials, USWA-39 (2421 pounds per acre) outyielded Montcalm

(CTV susceptible) (1516 pounds per acre) while maintaining essentially the same color and size: Montcalm (915 seed per pound) and USWA-39 (848 seed per pound). At 100 days maturity, Montcalm was two days earlier than USWA-39 (102 days).

USWA-70 (seed lot 95-2718), a white kidney (Alubia type) is an F_7 derived F_9 population with an upright bush habit from the cross 'Lisa'/'Linden'. Lisa is a small, white-seeded mutant out of 'Royal Red', a dark red cultivar with BCMV and CTV resistance developed by Dr. D. W. Burke. Linden, developed at the University of California-Davis, is a large, bright, white seed, dominant *I* resistance to BCMV, but is susceptible to CTV. USWA-70 has dominant *I* resistance to BCMV and complete resistance to CTV. It has not been in yield trials, but appears to have a good pod load and reasonable maturity. The unusually attractive, large (550-600 milligrams), shiny, white seed should be useful to bean breeders.

RELEASE OF TWO NAVY DRY BEAN GERMPLASM LINES, USWA-48 AND USWA-50, WITH VIRUS RESISTANCE

The Agricultural Research Service, U. S. Department of Agriculture, and the Agricultural Research Centers of Washington State University, the University of Idaho, and Oregon State University announce the release of two navy dry bean germplasm lines, USWA-48 and USWA-50, with resistance to bean common mosaic virus (BCMV) and curly top virus (CTV).

Complete resistance to all strains of BCMV and CTV is needed in the bean seed production areas of the arid western states. Both lines carry the dominant *I* resistance gene to BCMV and have stable resistance to CTV (presumed to be due to two dominant epistatic genes). These lines were developed by Dr. Matt J. Silbernagel, Research Plant Pathologist (retired), USDA-ARS, and Dr. An N. Hang, Agronomist, Washington State University. Both are located at the WSU-Irrigated Agriculture Research and Extension Center, 24106 N. Bunn Road, Prosser, WA 99350-9687.

USWA-48 (seed lot 95-2604) is an F_7 derived F_{11} population from the cross NY5-161-W/A55. NY5-161-W is a cold tolerant, bush type, white-seeded breeding line from Dr. M. Dickson (New York State Agricultural Experiment Station, Geneva, NY). A55 is an upright II-A (CIAT classification), black-seeded line with root rot tolerance, a high tolerance to CTV, and dominant *I* resistance to BCMV, developed by Dr. Shree Singh (CIAT, Colombia). The most outstanding characteristic of USWA-48 is the very upright, narrow profile, II-A plant habit, similar to a soybean plant habit. Maturity was about four days later than 'Norstar' in 1995 replicated yield trials near Othello, WA. USWA-48 yielded 3200 pounds per acre versus 3800 pounds per acre for Norstar. However, the tall, narrow profile with high borne pods might lend itself to high-density culture (11-inch rows) or solid planting for direct mechanical harvest. Under high density conditions, yields should be very competitive.

USWA-50 (seed lot 95-2134) is an F_5 derived F_9 bulk population from the cross GH-11/'Pearl'. GH-11 is a navy breeding line with dominant *I* gene BCMV and complete CTV resistance, developed by Dr. D. W. Burke (USDA-ARS, Prosser, WA). Unfortunately, it did not have an acceptable seed