

## Evaluating Baby-Leaf Salad Greens for Spring and Fall Production in Northwest Washington<sup>©</sup>

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Leafy green crops such as lettuce (*Lactuca sativa*), kale (*Brassica oleracea*), arugula (*Eruca vesicaria* syn. *E. sativa*), and mustard greens (*Brassica juncea*) thrive in the cool, humid climate of the maritime Pacific Northwest, particularly in the spring and fall seasons when farmers in the region experience decreased income relative to the main summer growing season. Thus, baby-leaf salad greens are a popular direct-market crop for producers in northwest Washington. To identify salad greens best-suited for shoulder-season production, 10 leafy green salad greens were grown in replicated trials in a randomized-complete-block, split-plot design with three replications at two locations in the fall and spring for 2 years in northwest Washington. Salad greens were evaluated for marketable yield, leaf length, days to harvest, and associated weed pressure. Results from Fall 2012, Spring 2013, and Fall 2013 reveal that brassica crops have a higher yield: days-to-maturity ratio than lettuce, spinach, or beet crops ( $P=0.0234$ ), suggesting that leafy green brassica crops are better suited for baby-leaf salad green cultivation in northwest Washington than lettuce, beet, and spinach. Weed pressure was significantly higher in spring than in fall ( $P<0.0001$ ). The ratio of grams marketable yield per grams weeds harvested differed by taxon in the spring ( $P<0.0001$ ), with komatsuna and bekana mustard greens, joi choi pac choi, 'El Real' spinach, and winter red kale having the lowest weed weight per gram of marketable yield. The ratio of grams marketable yield per grams weeds harvested did not differ between salad green type in the fall. These results suggest that weed management and plant selection for weed competitiveness is more important for spring production of baby-leaf salad greens in northwest Washington than for fall production. In an adjacent study bed flaming was assessed as an organic weed management option for baby-leaf salad greens production. Beds of arugula were planted and assigned randomly to one of three treatments: 1) pre-seeding flaming, 2) post-seeding flaming, and 3) control (no flaming). Stand counts and weed density were recorded for each plot 2 weeks after planting. Flaming was found to significantly decrease the number of weeds in the beds of arugula ( $P<0.0001$ ) and the timing of bed flaming (before seeding and after seeding) did not significantly affect arugula stand counts ( $P=0.9956$ ), indicating that exposure to a flaming treatment did not affect the crop's germination.

