2024-25 Field Trial

Plant Type: Narrowleaf Milkweed (Asclepias fascicularis)

Summary: In spring 2024, SAI planted Narrowleaf milkweed plants sourced from a greenhouse. Over the summer, they endured a pair of heat spikes. The plants grew, but the SAI plants grew faster, taller, wider, and with 27x leaf surface area per plant (food for the endangered Western Monarch butterfly caterpillar).

At the end of the 2024 season, 2 plants were dug up in dormant season, and the roots were examined (photo 1). The SAI treated plant roots were longer and thicker. In November 2024, these plants were replanted, and the stalks cut off.

Photo 1: Massive difference in one season of growth, between Narrowleaf Milkweed plants. The plant on the left is a control plant; the plant on the right is a SAI treated plant. The SAI plant has multiple stalks vs 1 for this control plant, the SAI stalks are about 2x taller, the SAI treated leaves are about 4.7x larger than the largest leaves on the control plant, and the SAI treated plant had a root ball more than 5x larger than the control plant.

These plants were replanted, no additional SAI materials were added, and the stalks were trimmed back to ground level, thus starting new growth in April 2025 at a height of zero.

3 June 2025 Update: We measured the plants on 3 June 2025. The SAI treated plants are not only taller (37" vs 6") and wider, they have birthed many additional plants (photos 2, 3), and the largest leaves are 19x larger than the largest leaves of the control/untreated brother. (Photo 4)

Photo 2 (l): Narrowleaf milkweed plant, grown in native soil, barely 6" tall by early June '25.

Photo 3 (r): Narrowleaf milkweed plant, over 36" tall, grown in the same native soil, getting the same amount of water and sun as the plant in photo 2, but differing only in that the plant in photo 3 got a dose of SAI soil amendments at initial planting in 2024.

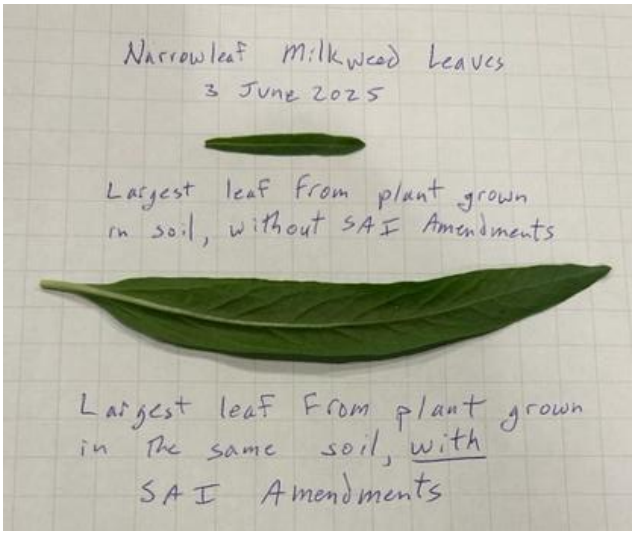

Photo 4: the largest leaves from a control plant (left), and from an SAI treated plant. The SAI leaf is ~19x larger than the leaf from the control plant.

Gridlines are at 1cm.

17 September 2025 Update: The SAI treated plants are much taller, with much larger leaves, than the control plants. We will have 24 seed pods from these giant plants, if you are interested in exploring if the giant size is a heritable trait, I'll give you some seeds. Plant some without the SAI amendments, and plant some with SAI amendments. Plant some seeds that are not from these known to be giant narrowleaf milkweed plants. As a scientist, what happens? Has SAI unexpectedly created a "super plant" of a subspecies? I have measured A. fascicularis at many locations in the wild, and those wild plants match what I see in these control plants: none of the "wild" narrowleaf milkweed comes anywhere close to plant height, plant width, largest leaf size, compared to these SAI treated plants. The SAI soil amendment was a little over 1 teaspoon per plant, no additional SAI materials were added at replanting. All of the exceptional growth is attributable to what was added at initial planting in 2024.

Photos 5, 6: These photos were taken on 24 August 2025. The photos are "scaled", so that the leg length of the man is about the same length (i.e. heel to crotch).

Photo 5 (l): This plant started as one in 2024, and became three stalks in 2025. The tallest stalk was 42cm x 20cm wide, with a plant volume of ~ 840cm^3.

Photo 6 (r): This plant also started as one in 2024, and ended 2024 as 3 stalks. In 2025, it has become 35 stalks! The tallest is 146cm, x 34cm wide, for a plant volume of ~4,964cm3, ~6x more plant volume.

Photo 7: These are the largest leaves from the 12 narrowleaf milkweed control plants (right), and from one of about 51 SAI treated plants (left).

The largest leaf from a control plant is 9cm long, and 0.6cm wide, for a leaf surface area of ~5.4cm^2.

One of the largest leaves from an SAI treated plant is 17.5cm long, and ~2cm wide, for a leaf surface area of ~35cm^2, for about 6.5x more surface area per leaf.

For this plant, the leaf size is the crop. It is a food for Western Monarch butterfly caterpillars.

Individual leaf size, multiplied by # of leaves/plant volume, I didn't count each leaf per plant, but it is pretty clear that the SAI treated plants are producing over 100x more leaf surface area per plant.

Photo 8: the largest leaves of many different narrowleaf plants, at multiple sites, in multiple soil conditions. The two are on the left were grown in pots with potting soil. The next three were grown in native soil. The next one is "wild" in a native plant garden. The three on the right are from three different plants treated with the SAI soil amendment. All of these plants started at "zero height" in April '25, and emerged from the roots. Grid lines are at 1cm. End of season, I surveyed the plants again (6 Nov '25), and found the wild/HP largest leaf had grown, shrinking the size differential to "only" 6x bigger for the SAI treated plant.