University of New Hampshire
Cooperative Extension

# 2017 Research Report: Overwintering Scallions with Heavy Rowcover

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**Introduction.** After several years of research, we know that it is possible to plant bulbing onion (*Allium cepa*) in the fall, overwinter them in low tunnels, and harvest bulbs by late May in Durham, NH. For detailed information about this system, see Research Report: Overwintering Onions 2014-15. In response to grower inquiries, we expanded this work to look at non-bulbing onions, also known as green onion or scallion (*Allium fistulosum*).

**Our objective** was to compare overwinter survival of several scallion varieties planted at three different fall planting dates.

**What we did.**
Seed of the varieties shown below were obtained in mid-summer 2016. Onions were seeded in 128-cell transplant trays using ProMix BX and were transplanted into the field at the dates shown below. We applied soybean meal (7-1-2) and potassium sulfate (0-0-50) at rates equivalent to 100 lb/A of N and $K_2O$. Planting beds were 30" wide, slightly raised (1-2"), and covered with embossed black plastic mulch. Scallions were planted in holes 4" apart in-row, in 4 rows spaced 8" apart; with clumps of 3 plants per hole. No supplemental irrigation was needed during the experiment. We used a randomized complete block experimental design, with three (3) reps and experimental units of 36 plants.

| Variety | Color | Seed Source | Seed 8/23 Transplant 10/3 | Seed 9/2 Transplant 10/10 | Seed 9/15 Transplant 10/26 |
|---|---|---|---|---|---|
| Apache | Purple | Osborne | X | | X |
| Deep Purple | Purple | JSS | X | | X |
| Evergreen | White | JSS | X | X | X |
| Fukagawa | White | Osborne | X | | X |
| Gallop | White | Takii | X | | |
| Ishikura | White | Osborne | X | X | X |
| Kincho | White | Osborne | X | X | X |
| Kusanagi | White | Takii | X | | |
| Lillia | Purple | Osborne | X | | X |
| Nabechan | White | JSS | X | | X |
| Parade | White | High Mowing | X | | X |
| Red Baron | Purple | High Mowing | X | | X |
| Spring Slim | White | Takii | X | | X |
| TI-134 | White | Takii | X | | X |

Seed Sources: JSS = Johnny's Selected Seeds, Albion ME; Osborne = Osborne Seed Company, Mt. Vernon WA; Takii = Takii North America; High Mowing = High Mowing Organic Seeds, Wolcott VT.

**Winter protection.** The entire planting was covered with heavy rowcover (Dupont T5131, 1.25 oz/yd$^2$) on 14 November, 2016. The edges were weighed down with sandbags, and a Hobo temperature sensor

with two soil and air temperature probes was placed underneath the rowcover in the center of the planting. Rowcover was removed on 8 April, 2017.

**Data collected.**
On 24 April, 2017, we counted the number of surviving plants per plot, and calculated the percentage of winter survivalOn 24 May, we photographed each variety of scallion, all from the first planting. We did not collect harvest data, but made general observations about prevalence of bolting on 16 May.

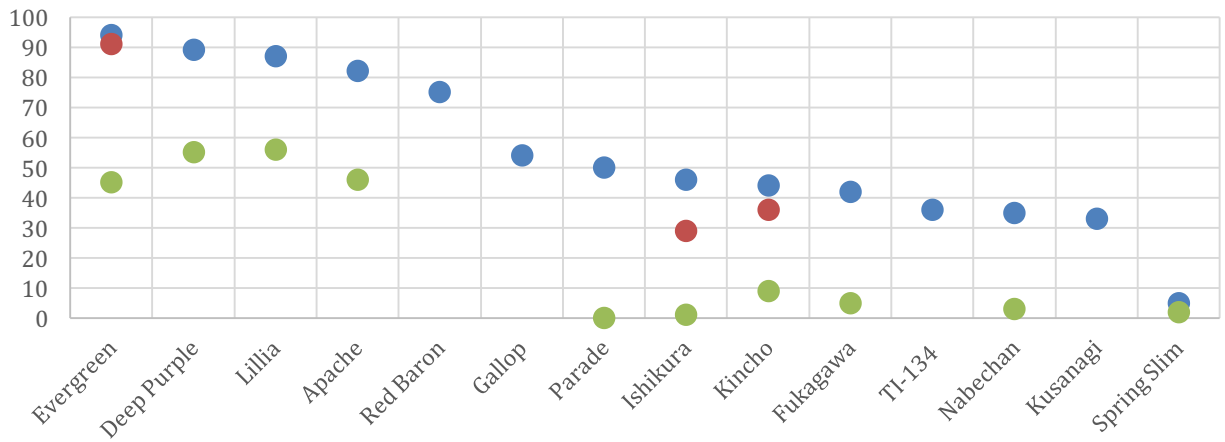
**What we learned.**
There were *dramatic differences* in winter survival between varieties (see Figure 1, below). In the first planting, the white variety **Evergreen** and all four purple varieties (**Deep Purple, Lillia, Apache**, and **Red Baron**) had over 75% survival, significantly higher than the worst variety. The same varieties (excepting Red Baron, which was not included in the last date) showed highest survival rates in the last planting date as well. Photos of all varieties are shown on the last page of this bulletin.

In general, the purple varieties showed remarkable bolting resistance; with no bolting, even among plants from the earliest planting. All white varieties, in contrast, showed a fair amount of bolting, with higher levels in the earlier planting.

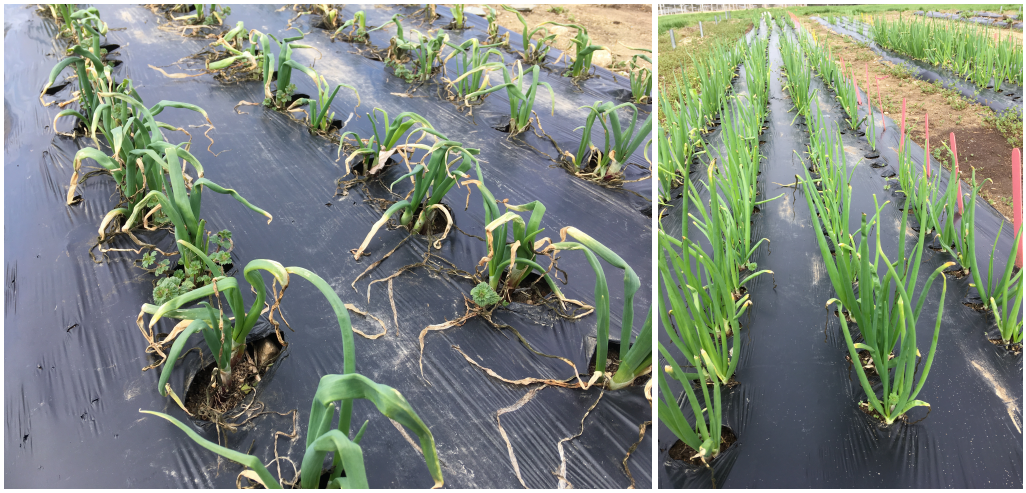
Planting earlier increased survival, but also increased bolting. Regardless of whether varieties showed good winter survival or not, ALL varieties survived less well when planted later. Seedlings from the later planting were much smaller when transplanted, and it is possible that they were more vulnerable to dessication, frost heaving, or other stresses.

The scallions were not attractive when the rowcover was taken off; the weight of the cover squished them and distorted their leaves. However, 2-3 weeks after rowcover removal, new growth was upright, green and healthy, and the scallions reached perfect harvest stage by early May.

Figure 1. Percent Winter Survival of Scallions in Durham NH - 24 April, 2017
blue: seeded 23 Aug; red: seeded 2 Sep, green: seeded 15 Sep



Scallion planting covered with rowcover in Nov 2016 (left) and again in Dec 2016 (right).



Scallions immediately after rowcover removal on 8 April (left), and again on 28 April (right).

**Take-home messages & future directions.**

In this one-year study, none of the many white scallion varieties we evaluated had better overwinter survival than **Evergreen** (AKA Evergreen Hardy White). However, we were surprised to see the good performance of all four purple varieties we evaluated, and think these are worth further investigation. They were exceptionally attractive, and would be a nice addition to a spring market stand.

Earlier planting dates (late August seeding, early October transplant) had higher survival, and may mature earlier, than later planting dates, but did have higher bolting rates. The purple varieties evaluated had excellent bolting resistance, and we plan to try even earlier planting dates for these varieties.

Please caution when interpreting the results from a single year's study. 2016-17 was a mild winter, with a minimum outdoor temperature of -2°F in Durham. We plan to repeat this study to confirm the potential for this system in a more typical winter.

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