**WSARE Onion Project 2015 Annual Report**

**Onion Systems Management Strategies for Crop Nutrition, Weeds, Thrips, and Iris Yellow Spot Virus**

**Fig. 1.** The influence of weed border treatments on thrips population densities in adjacent onions, 2014.



**Fig. 2.** Adult thrips population densities on weeds in monoculture borders, 2014.



**Fig. 3.** Larval thrips abundance on weed species in monoculture borders, 2014.



**Fig. 4.** Comparison of 2014 and 2015 onion thrips abundance on onion averaged over all treatments.



Fig. 5. The influence of weed border treatments on thrips population densities in onion during 2015.



**Table 1.** IYSV incidence rates in weed species (% of plants infected) during 2015.

|  |  |  |
| --- | --- | --- |
| Month | Weed species | Mean IYSV infection rate (%) |
| June | Black medicCommon mallowField bindweedLambsquartersPrickly lettuce | 1-3% |
| Witchgrass | 0% |
| July | Black medic | 8.5% |
| LambsquartersPrickly lettuce | 7.5% |
| Nightshade | 0% |
| Witchgrass | 17.5% |
| August | Black medicCommon mallowPrickly lettuce | 0% |
| Nightshade | 6% |
| Witchgrass | 4% |

**Table 2.** IYSV incidence rates in onions (% infection) grown next to different weed border treatments.

|  |  |  |  |
| --- | --- | --- | --- |
| Treatment | June | July | August |
| Hand-weeded | 0% | 2.5% | 5% |
| Common mallow | 2.5% | 2.5% | 20% |
| Field bindweed | 0% | 10% | 7.5% |
| Prickly lettuce | 2.5% | 2.5% | 12.5% |
| Resident weeds | 5% | 7.5% | 7.5% |
| Resident weeds - mowed | 5% | 2.5% | 0% |

**Fig. 6.** Soil nitrate concentration in reduced (low) and standard (high) nitrogen application treatments in 2014.

**Fig. 7.** Readily mineralized carbon concentration in soils treated with reduced (low) and standard (high) rates of nitrogen fertilizer.

**Fig. 8.** Soil microbial biomass in soils treated with reduced (low) and standard (high) rates of nitrogen fertilizer.