2011 National Sunflower Survey

Each year the National Sunflower Association conducts a survey of the nation's sunflower crop. Volunteers from several states visit sunflower fields to survey the crop condition. Fields were evaluated for yield and production practices, weeds, insects, diseases and bird damage. This was the second growing season in which UVM Extension participated in this survey. Nationwide, 155 sunflower fields were included. Other states participating in the survey were North Dakota, Minnesota, South Dakota, Kansas, Nebraska, Colorado, and Texas. Manitoba, Canada was also included in the results.

Figure 1. Sunflower field in late Sept.

Eight fields in Vermont and Northern Massachusetts were surveyed in collaboration with the National Sunflower Association. Within each field, two locations were surveyed and crop stand characteristics were evaluated. Population, average head width, seed set and size, and estimated loss due to lodging, bird and insect damage, and disease contributed to the estimated seed yields. Seed samples were hand-threshed and mailed to the USDA-ARS Northern Crop Science Lab in Fargo, ND for analysis of insect damage.

Some of the survey results are shown in Table 1. Of the eight fields evaluated, with the exception of one no-till field, all others were tilled conventionally. All sunflowers were grown in 30" rows and none were irrigated. There was a wide range of previous crops noted (Table 1).

Table 1. Vermont and Northern Massachusetts results from the National Sunflower Survey, 2011.

Field	Previous crop	Population	Estimated seed yield	Average head diameter	Bird damage	Seed size
		plants acre^{-1}	lbs acre^{-1}	inches	%	
1	Hay	12545	832	7.0	13.4	1.2
2	Alfalfa / grass	16552	1007	6.2	14.8	1.1
3	Small grains	16698	614	5.8	10.2	1.1
4	Corn	18470	738	5.3	10.1	1.0
5	Grass	21780	1880	6.8	1.10	1.1
6	Small grains	22128	1442	6.0	6.70	1.2
7	Sweet corn / squash	23174	343	4.4	12.8	1.0
8	Corn	25265	595	4.3	2.20	0.9
VT survey average		19577	931	5.7	8.9	1.1

A wet spring and late summer were problematic for many sunflower growers in 2011. Many growers delayed planting; some experienced high lodging rates due to the severe winds of Tropical Storm Irene and other serious storms in the area. The major limiting factors overall for yields among surveyed fields this year were weed competition, lodging, insect damage, disease, and uneven plant growth. Variable yields may also be attributed to widely ranging populations.

Bird damage was observed in 100% of the fields surveyed in Vermont and Northern Massachusetts, which was a higher incidence rate than in any other state. This is likely due to the small acreage of our fields, which allow for birds to perch in field edges, feed on sunflowers, and retreat to cover. Birds damaged an average of 8.9% of the crop. Deer damage was also observed in the fields.

Figure 2. Sclerotinia head rot in a Vermont field in October 2011.

The most common disease found in Vermont and Northern Massachusetts sunflower fields was sclerotinia head rot (Figure 2), which was evident in 75% of fields surveyed and damaged an average of 9.3% of plants in fields where it was present. Though over 80% of the fields surveyed had some sclerotinia stalk rot present, the number of plants affected was 8.5% in infected fields. Phomopsis stem canker, an emerging disease that manifests as a large brown lesion on stalks, was included in the nationwide survey for the first time in 2011. Possible signs of phomopsis were identified in only one field in Vermont during the survey.

Insect damage was mostly caused by banded sunflower moth. The incidence of banded sunflower moth damage was highest in Vermont. More than 63% of the fields surveyed had damaged seeds, and of these fields, an average 17% of the seeds were damaged. This insect predates on seeds, lowering test weight and reducing oil content and yields. There was no long-horned beetle damage identified and very low sunflower seed weevil and sunflower bud moth damage compared to national results.

The most prevalent weeds identified in the fields were barnyardgrass, common lambsquarter, common ragweed, wild mustard, and quackgrass. Survey-wide, broadleaf weeds were more prevalent than grasses.

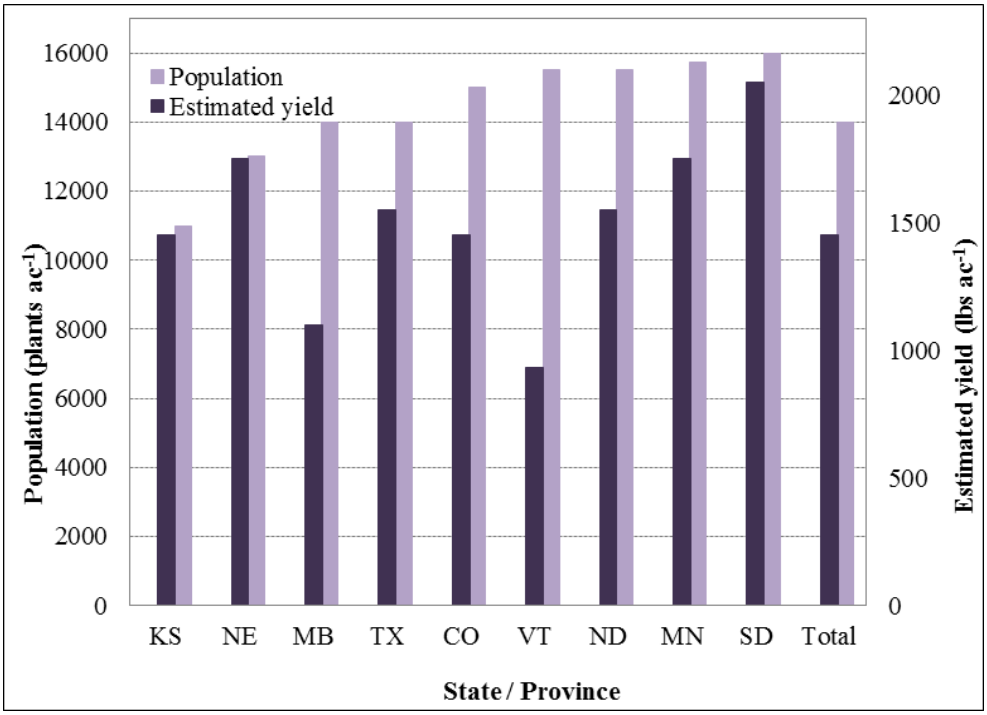

Figure 3. Population and estimated yield by state/province. ***Data from Nat'l Sunflower Association.***

In general, 2011 was a very challenging crop year in the Northeast, with delayed planting and severe weather events in addition to the usual pest damage and crop loss due to disease. Bird damage continues to be one of the biggest problems for growers in this area. While sunflower populations were comparable to other states and higher than the survey average, yields were decreased drastically by other factors such as adverse weather conditions, disease, and pest damage (Figure 3). Due to these issues, seed yields were significantly lower than 2010 yields (average yield was 931 lbs per acre in 2011, as compared to 1312 lbs per acre in 2010). Additional research is needed to identify best control methods for sunflower pest and disease management.