Corn Stunt Disease
A Costly Problem for Growers and Dairymen
Next season could see spread beyond the South San Joaquin Valley
Growers urged to take steps to reduce risk

Corn stunt disease continued to be a problem for corn growers and dairymen in 2002. After a bad year in 2001, when losses from the disease in Kings County exceeded $5 million, 2002 has seen more widespread incidence, with reports of affected fields in Tulare, Kern, and southern Fresno County. Recent confirmation of corn leafhoppers in Madera, Merced and counties further north indicate that growers throughout the Valley could be facing the problem next year. Investigations by UC researchers have shed light on the problem, but there is still not an easy answer for growers looking to avoid the disease entirely. Here is what is known:

- Corn stunt disease is caused by a micro-organism called *Spiroplasma kunkelii*
- Corn is the only "host" for this organism – it does not infect other plants found in the Valley
- The spiroplasma is spread by corn leafhoppers, *Dalbulus maidis*, small insects that feed only on corn
- Once leafhoppers feed on infected corn, they acquire the spiroplasma and can spread it to other corn fields
- Disease symptoms appear about 3 weeks after corn is infected
- All current commercial varieties of field and sweet corn appear to be susceptible
- Yield loss depends on growth stage of corn when infected, but can be significant, especially in late corn
- There is no chemical treatment to control the spiroplasma
- Chemical control for corn leafhoppers is generally NOT EFFECTIVE in controlling the disease
- Leafhoppers can distribute themselves over large areas and are very prolific in late summer
- The only food source for corn leafhoppers is corn and they can survive up to 5 months without feeding
- Corn stunt spiroplasma survives winter in adult corn leafhoppers
- Adult corn leafhoppers can over winter in the San Joaquin Valley
- Late harvested and volunteer corn contribute to over wintering success by shortening the period of time the leaf hoppers are without food

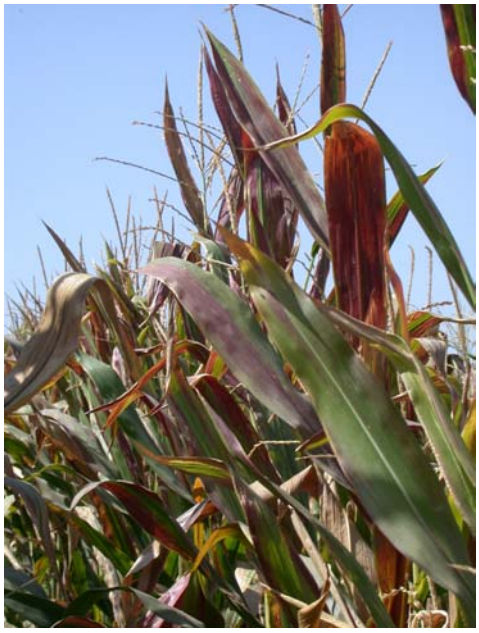
To reduce the risk of perpetuating the disease into the 2003 season, growers are urged to:

- **harvest all corn by October 31st AND,**
- **plow down or destroy all volunteer corn that emerged after harvest**

Discing fields where volunteer corn is growing will eliminate food sources for over wintering leafhoppers. Hand hoeing may be required in winter forage fields to kill the unwanted corn. Newly planted alfalfa may require hand hoeing or herbicide applications. Waiting for a frost to kill the corn is not a good option. Killing frosts don't occur until December or January, leaving too much time for the green corn to provide food for pesky leafhoppers.

Common disease symptoms include red leaves, short bushy plants and multiple ears.

The corn leafhopper, *Dalbulus maidis* shown at about 20 times normal size. Actual size is approximately 1/5 inch long. Corn leafhoppers are tan color and can be distinguished from other leafhoppers by two black eyespots on the head.



Leaves turn red, then die back. Some corn hybrids don't develop red color but rather go straight to light brown.

Other steps to consider include:

Plant early next season. Many growers in Kings County planted early last spring and escaped the disease. Early planting reduces risk of yield loss because corn is relatively mature or harvested by the time corn leaf hoppers build huge populations that would incur the most damage.

How early? Planting **April through May** will reduce risk of yield loss. Corn planting can begin as early as March in the South Valley. But planting in March narrows the window of "no food" for leafhoppers. March planting also means growers will have to forego a winter forage crop. Winter forages are a very important part of our cropping system. They are economical, versatile forages for the dairy market that can utilize significant quantities of manure nutrients. Most winter forage crops harvested at "soft dough" stage of maturity are ready to harvest mid April through early May, which leaves adequate time to get corn planted by the end of May. Another option is "boot" stage harvest, the growth stage just before grain heads emerge. This stage typically occurs in mid to late March, which would enable corn planting in April. Boot stage forage is very nutritious for milk cows, but the excellent quality comes with a cost of reduced yield relative to soft dough stage harvest. There is tremendous diversity in types of winter forages available for planting. Ask your local farm advisor or seed representative to help you determine which forage type would be best for your operation.

Planting corn in June gets risky, and planting after July 1st is just asking for trouble! Growers who want to plant a crop to follow corn in July or August should consider sudangrass, sorghum or a sorghum-sudan hybrid. These summer annuals are not affected by corn stunt disease.

These are the best measures we have for controlling the disease until more is known.

To view additional photographs of affected corn, visit UC Cooperative Extension websites for Kings and Tulare counties.
http://cekings@ucdavis.edu and http://cetulare@ucdavis.edu

You can also call or email us if you have questions:

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