

## Advise on Mildew problems.

Mildew is the biggest problem for Kalanchoe. This is mainly because the advice to treat it is based on quite heavy chemical usage. But before spraying there are many other alternatives to think about.

First of all Mildew has roughly two ways of development. First it needs a warm and humid environment to attack the plants. Then it settles itself in the plant and waits for the right set circumstances to develop into the second stage that results in the powdery mildew. During this stage it must be warm and dry. Of course in a greenhouse during the different times of the year, these kind of circumstances always occurs, but doesn't always mean that an infection with mildew will result.

1. Sulphur evaporators. Burning sulphur during 3-4 hours at night (highest position of the burner, closest to the sulphur, will prevent most mildew on Kalanchoe. Most new varieties are resistant, or as good as resistant (they can fight back, which gives a symptom of small, light green spots on the leaves). Sulphur is always preventive, never curative.

2. Spraying sulphur. The same idea as with sulphur evaporators. Again, this is only a preventive solution, never a curative. It is been said that sometimes it helps cure powdery mildew as well, but that's not right. What happens is spraying the sulphur prevents spreading, but it never kills the mildew completely. Spray on a regular base.

3. Spraying with chemicals to treat mildew is always a big risk. This is because all the chemicals we have nowadays are very aggressive. They all belong to groups of chemicals that were originally used on field crops like wheats, barley and outdoor products.

(In crops protection books you often read that f.i. propiconazole (Tilt) can be used against mildew. This is correct, but actually, Tilt is used in Europe as a growth retardant show the chemical mode of action).

The advise is therefore always based on two heavy treatments, which will cost lose of growth and can sometimes lead to some damage (burning).

**It is extremely important to follow the rules of spraying with Tilt in order to prevent too much crop damage.**

4. Chemicals to spray against mildew:

- Flint Trifloxystrobin
- Rocket Triflumizool
- Amistar Azoxystrobin

5. At the beginning of the problem, the advise is to start with Rocket, because it is the softest of the chemicals. When the problem is tougher, you need to use the other (strobin) groups of chemicals.

6. When you spray you need to follow the advise on the labels (such as the rates) carefully and also:

- Don't spray in the evening
- Don't spray during sunny periods
- Avoid direct sunshine of the crop after spraying
- Make sure the crop is not wet anymore when the sun comes out
- Use a lot of fluid (run-off)
- Make sure you hit the deep parts of the plant (stems etc.)
- Make sure you hit the underside of the leaves

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