Workshop Title: Things to Know About Growing Mixes and Compost

Speaker(s) & their titles: Rob English, New Brunswick Department of Agriculture, Aquaculture and Fisheries (NBDAAF)

Executive Summary
Rob outlines the important things to consider for different soil mixes including the pros and cons of various materials that can be added to soil mixes. He also explains the results from trials conducted at Jolly Farmer in 2013 with various soil mixes and fertilizers. He also outlines the important elements needed to create a good compost and how to test if your compost is doing well.

Detailed Notes

Types of Greenhouse Mixes

Rob says there are two types of mixes for in greenhouses: germinating mix and transplanting mix. For a germinating mix you need to take more care and the ideal pH is 5.5-5.8, and the EC (electrical conductivity: measurement of soluble salts and levels of nutrients available in the soil) is <1.0 mmhos/cm. With a germinating mix you want low nutrient levels to ensure seedlings are not damaged. Further, as each cell in a seeding tray is small the particles must be small to ensure each cell receives nutrients.

For a transplanting mix you purchase you should ask for a lab analysis of soil. If someone does not want to give you a lab analysis you should question if you want to use that product. Trials by NBDAAF found recommended ranges to be higher for EC than those recommended by many soil companies. As a rule of thumb the ideal density of a transplanting mix would need to be watered once a day.

Peat is rated on a 1-10 scale and horticulture grade peat is rated 2-4. Coir (coconut husk) is a possible peat substitute but it is imported, not sustainable, expensive, but does have good pH level.

The following possible components of growing mixes are listed on slides 10-17 with individual pros and cons.

- Sphagnum Peat
- Coir
- Perlite
- Vermiculite
- Compost (likely to compete for nutrients, need EC to be lower in greenhouses than outside: e.g. poultry based composts are good outside but not in greenhouses)
- Aged bark (can be both aerobic which has good beneficials or anaerobic which is a more mixed bag)
- Peat humus
- Worm castings (at Jolly Farmer, did not find benefits for transplants due to the slow release rate and the nutrient levels are dependent on the type of food fed to worms)

Fertilizer Supplements

Next Rob outlines several possible supplements such as lime, which is important to have in a fine grade. If you need to raise pH and are low in calcium you should use

calcitic lime and if you need to raise the pH and the magnesium you should use dolomitic lime.

Greenhouse Trials 2013

When determining if you should feed your plants something extra it is too late if they start showing signs of needing to be fed.

In their trials they found that lettuce fed from the day of transplanting on resulting in significant improvements – the worst mixes as well as the best. During this trial they gave liquid fertilizer once a week and watering as needed. (Photos and trial observations on slides 21-36). Jolly Farmer uses a compost mix made after learning from an Austrian "compost guru" who emphasized it is important to have finished compost to prevent compost from taking nutrients from crops. Note: on slide 37 the farmer switched fertilizer just he ran out of one type.

Compost

"All composts are not created equal"

Compost quality can be measured on a scale of 1 - 100 in variance of quality. Just because a little compost is good it does not mean a lot is better and a little compost goes a long ways. Using thick compost on hay can cause cows to have health problems due to high potassium levels.

Critical Elements for Good Compost

There are four basic elements needed for good compost: oxygen, moisture, food, and heat. Taking care of first three will lead to the fourth naturally. Rob suggests that a compost made with pitchfork is ideal size. He states that oxygen availability determines whether your compost will be aerobic or anaerobic.

To test the moisture you can squeeze a handful; if it is dripping that is too moist, if it is crumbling and not staying in a ball that means it is too dry. During the hot months you will need to add water to your compost and during the cold months you want to keep water out. One way to do this is with a compost fleece, which allows compost to breath while also shedding water. It is essential that the compost has carbon and nitrogen. Too much heat will destroy beneficial microbes.

Production Methods

It is good to start with a pitchfork and gradually scale up if needed.

Evaluation of a Good Compost (refer to checklist on slide 52)

A good compost should smell like rich forest soil and you should not be able to tell what the original ingredients in the compost were.

If you are going to add more water you can do this by using a garden hose while turning and fluffing the pile. To test the moisture of the compost you can weigh a sample and then heat/dry until the moisture level stops dropping you weigh it again and calculate the difference for example if the weight drops by half then it is 50% moisture.