

GrowBIG Commercial IPM SOP Suggestions

General:

- Integrated Pest Management (IPM) is a multi-faceted, multi-disciplinary practice. Beyond spraying pesticides for insect and mold pests, you want to consider:
 - Exclusionary practices such as bug screening, reducing personnel traffic in and between rooms, using foot baths with peroxides
 - Cleaning/foaming rooms between harvests
 - Ensuring media is pathogen-tested for aspergillus and other pathogens
 - Do not re-use soil due to risk of Hops Latent Viroid and/or insect pest accumulation
 - Frequent lab testing to monitor Hops Latent Viroid in mother/nursery
 - Use and frequently change PPE esp nitrile gloves
 - Keep scissors in a 10% bleach solution and alternate when de-leafing or cutting clones
- Alternate pest sprays so insects do not gain immunity to any one pesticide (alternate modes of action: peppermint oil, Iso alcohol, sulfur, corn oil, citric acid, neem oil/azadirachtin, oleic acid, mycoinsecticides)
- If purchasing rooted cuttings from an outside nursery, always treat as if there are insect pests latent in the clones. Spray or dip, and quarantine if possible.
- Kill all insect pests in veg phase to reduce incidents of pest pressure in flower
- Don't spray insecticides on flower beyond week 3-4 unless insect pests overwhelm/emergencies
- Spray fungicides for Powdery Mildew & botrytis prevention only if strains/climate requires it to avert crop losses
- Utilize silicates + fulvics in your foliar program, from Day 1, to build leaf tissue resilience to insect and mold pests (add CalMag if RO water, never foliar RO)
- Always use a wetting agent in foliar sprays. RAW/KALIX Yucca powder is highly economical and increases effectiveness of foliar feeds and pest control.
- Use a droplet sprayer, not a fogger, for any pesticides which are intended to coat and suffocate insect pests
- Do not spray plants in mid-day sun or with lights on. Spray early in day, dim indoor lights to minimal working conditions (best, use green lights when spraying IPM and until plants are dry).
- Get UNDER the leaves & canopy. Get everything wet!
- Shortly after pesticide sprays, the lead grower should visually inspect the IPM team's application to confirm the team is applying for thorough coverage esp undersides of leaves.
- Pay attention to REI (re-entry intervals) and post grow rooms accordingly.
- Incorporate root-zone insecticides to control root aphids, fungus gnats, and thrip pupae

Clone Phase

1. Use X-IT in clone cuttings water and pre-treat rooting plugs to reduce incidents of Hops Latent and boost overall plant vigor, defenses.
2. Dunk cuttings in Moisture-Loc to protect from sucking insects while under domes. Also can be a foliar sprayed prior to transport of rooted cuttings/teens when climates are hot/dry (reduces transpiration rate)
3. Start foliar program with Kalix K-Si (25gm/100G) + Organics Alive FPF Fulvic (1mL/G) + CaliMagic (3mL/G). For small batches, can substitute Kalix K-Si for Advanced Nutrients Rhino Skin, Botanicare Silica Blast or GH Armor SI at 3mL/G

Veg/Teen Phase

1. Hang yellow & blue sticky traps to support scouting. Scout canopy at least 2x/week.
2. After transplant into teen pots, root drench with Blacksmith Biosciences NoFly at 1lb per 100 gallons. Can be added/injected to feed water.
3. Continue foliar feed program with K-Si (40gm/100G) + Organics Alive FPF Fulvic (100mL/100G) + CaliMagic 5mL/G (omit if using Calcium-nitrate based feed program) (+yucca powder)
4. Incorporate insecticides into the foliar feed, alternating M-W-F in this order
 - a. Micronized sulfur diluted at 1 TBSP (5gm)/Gal increased to 10gm/Gal late veg (3gm/G if applied to fresh clones)
 - b. Pyganic (botanically-derived pyrethrin; neurotoxin) or Azamax (azadirachtin anti-feed, anti-breeding)
 - c. Lost Coast Plant Therapy, Green Cleaner (similar to LCPT), Circadian Sunrise, and/or CannControl. Note: if alternating oils and sulfur, test an area and wait 24 hours before proceeding (Circadian Sunrise is compatible with sulfur).
 - d. NoFly mycoinsecticide (foliar)
5. If fungus gnats present, add BTi (mosquito dunks) at 1 dunk per 50G. Break up and dissolve in 5G bucket and wait 1 hr before adding to tank. This will kill the larvae and break the life cycle. Repeat weekly til the adult stage is no longer visible.
6. Dose root system with NoFly at 1lb/100G in final week of veg phase

Early Flower (weeks 1-3)

1. Continue Veg program, but DO NOT USE Pyganic in flower.
2. Replace sticky tapes for scouting as needed

Late Flower (weeks 4-8)

1. End foliar program and switch to beneficials.
2. Hang one sachet of andersoni plus one sachet of swirskii predatory mites per 25-36 SF of canopy (for defense)
3. For GH: Add lacewing eggs at 1 egg per SF of canopy (aphids and 2-spot spider mite control)
4. If outdoor, add trichogramma wasps at 200k/acre for caterpillar/corn borer control. Repeat deployment weekly thru week 7 (total of 3, weekly applications)



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Powdery Mildew

1. If PM is detected, check and modify climate control to avert RH swings (esp after lights off).
Depress RH (increase VPD)
2. Botano BH-B (tymol-based OMRI) is highly effective fungicide
3. Can combine BH-B with Potassium Bicarbonate for dual-action control
4. Alternate program: Mix Organics Alive FPT 2ml/G + FPF 1ml/G + CaliMagic 5ml/G + Silica Blast 5-10ml/G to pH to 8.5-9.0. Add Yucca powder 0.5gm/G. Add RAW/KALIX Microbes Maintain if stubborn/persistent (and fix climate if possible)

Botrytis Control

1. If grey mold is detected: Depress RH (increase VPD), drop temps, increase air circulation
2. BH-B can be effective with repeat preventative sprays, flower weeks 2-3-4-5
3. RAW/KALIX Microbes Maintain features broad-spectrum anti-fungal (not compatible with BH-B)
4. Harvest early if botrytis continues to spread

All of the aforementioned products can be acquired via GrowBIG Commercial or alternate suppliers. Engage us to deliver beneficial insects from our vetted insectary partners to your schedule. We are preferred distributors for:

1. Moisture-Loc plant polymer
2. Botano BH-B fungicide
3. X-IT clone drench
4. Organics Alive fulvics (FPF) and humics (FPT)
5. RAW/KALIX microbials, Yucca powder, and potassium silicate (K-Si)
6. Lost Coast Plant Therapy FIFRA-25b pesticide
7. Central Coast Green Cleaner FIFRA-25b pesticide
8. Circadian Sunrise FIFRA-25b pesticide
9. Mammoth CannControl FIFRA-25b pesticide
10. Several insectaries, depending on beneficial insect type and application needs

We welcome our commercial cultivation clients to use, modify and apply these integrated pest management suggestions as you see fit. OK to forward this PDF document to other commercial cultivators but this information cannot be copied or re-packaged without our prior written consent. Thank you and Grow BIG!

-McGrowin and team

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