

Cultivating Cannabis

Transcript – Integrated Pest Management

Welcome back to Cultivating Cannabis. This is Module Six: Pests, Diseases & Nutrient Deficiencies. Today we're gonna talk about IPM or Integrated Pest Management. One of the basic principles is to try and prevent insect and disease problems. We do this by paying attention to a few basic areas: soil, water, airflow, light and creating beneficial relationships.

Buckle up folks, this is gonna be a long module, but fun I assure you. We're gonna be talking about Integrated Pest Management, otherwise known as IPM. Integrated Pest Management is our first step to making sure that we don't have diseases and pests, so there are ways to control these pests should they come about, but for the most part we really need to be considering our habitat, our soils, the plants around us, the beneficial insects; these kinds of things are our first step to making sure that we avoid problems in the first place. Then if problems do come up, we're able to combat them with different strategies. I will be giving some recipes for herbal teas and other pest control things that are some of my favorites and that'll be at the slideshow at the very end of this module. So, stay tuned for those fun, fun things.

So, what are beneficial insects? They're really important for your garden, so they are the insects that eat the insects that we don't like as much. So, they're the insects that eat the insects that eat your plants. It's really great to have these guys around. They help out in so many different ways and they're so much better at pest control than we are. So, these are just a few photos of different kinds of beneficial insects. We're gonna go through a few in detail. It's really good to notice the different kinds of insects that we like so that we make sure if we see insects on our plants, we don't kill the good ones and we know if it's a beneficial insect or an insect that is going to be harming our plants. And that just comes with time and learning and looking very closely and looking up any of the insects that you see before you take any action.

So, ladybugs they're such a great, little, friendly insect and most people are most familiar with them as grownups, but a lot of people are not familiar with what they look like in their different stages of growth. So, I've shown a few different stages, eggs, pupae, larvae; the larvae is this tiny little black and red alligator that's just absolutely ferocious and you can see that in the lower left. He's eating that little aphid and he's just devouring it. They're like the teenage boys coming into your kitchen after school just eating everything in sight. They really -- that's the most voracious stage of their time when they're eating all those aphids and other insects that we don't want as much.

Green Lacewings, these are really amazing beneficial insects; just beautiful as adults and again that larvae stage is this weird looking alligator thing. The eggs in the upper right photo hang on these kind of threads on the underside of leaves, so it's important to look out for those and make sure that if you see 'em you leave 'em be so that they can grow up into lovely larvae that can hunt and protect your crops. You can see in that bottom right photo, that larvae eating this caterpillar, so they're absolutely voracious. It's a whole world going on; they're so tiny.

There are also -- mites are something that we're gonna talk about later as far as the ones that aren't beneficial for your cannabis crops, but there are lots of beneficial mites and these ones can go around and either eat other mites or eat thrips or all kinds of different things. So, we'd like to invite these predatory mites into our system.

The Greenhouse Whitefly parasite, so this is a parasite that will kill the whiteflies, mostly the eggs. Alright, so if you don't have these insects in your system already, you can order them online. Beneficial insects are pretty easy to order. The eggs are one of the best things to order. Most of your local nurseries will have ladybugs that you can order as well and that's all well and good, and they'll do some good, but oftentimes if we let these beneficial insects go in our gardens and

we don't have what they need to be happy and healthy and live and reproduce as far as habitat, then they'll just fly away. So, we really wanna make sure that we have places for our beneficial insects to live and to drink nectar which is what most of the grownups will be doing, drinking the nectar from our flowers especially our Umbelliferae flowers. We wanna have shelter and nestings, so that means maybe perennial plants that we don't move as much, we don't cut down as much so that they can propagate and live in that space as well as water and all kinds of other things.

So, something is a strategy in Integrated Pest Management that we do is two terms called Indicator Plants and Banker Plants. Our Indicator Plants are going to be species that are really susceptible or tolerant but to certain conditions. So, they're really attractive to aphids. Eggplants as I listed there are one of those things. Aphids love eggplants and so while that may not be so good if you're trying to grow a large crop of eggplants, having a few eggplants around in a garden with something else as your primary crop, say cannabis in this case, will alert you of the aphids presence in your garden or in your greenhouse or your indoor grow before it's a big problem on your cannabis crop or any other crop. So, the aphids are gonna prefer the eggplant and they're gonna be on that first and so you can monitor that plant very closely. And if you see an increase in population happening, then you know it might be going onto other plants, but it will always happen there first. And there's peppers for thrips and all kinds of different ones that can help indicate that a problem might be coming your way.

Banker Plants are what I was talking about before, this kind of habitat place for your beneficials to live. So one, they're a lure for your beneficials, so these flowers that have nectar will lure the adult beneficial insects to come and drink the nectar, hopefully, lay their eggs and have their babies there so that their babies can out throughout your garden and hunt and kill your non-beneficial insects; the ones that want your plants. But for that to happen, we really need to provide a more of a permanent nesting. So in w greenhouse, this might look like a corner or a center island that has sage and it has yarrow and different plants that have beautiful flowers, that are perennial or that you don't really go in and out of and mess with too, too much and they'll be able to create a home there.

This is just an example of the diverse habitat that we have for the cannabis crop that we grow here at the ranch. So, you can see the cannabis there in the forefront and there's some in the background as well, but then there's lots of other plants; lots of flowers, lots of diverse seed. There's clovers, there's sunflowers, there's just all kinds of different things that one, covers the ground, some fix nitrogen, most all have beautiful flowers that will bring in our pollinators and beneficial insects and create just a really diverse habitat. So, nothing takes over and everything just thrives.

One of the most important things about pest management is it's really not usually about the pests. Oftentimes it's going to be the health of the soil or the lack of health and diversity in the soil that creates the problems that you see above ground. So, we really want diverse soil. We really want healthy soils. If you don't have this book, "Teaming with Microbes," and you're a really big soil nerd, this book is such a beautiful book that will just open your eyes to the magical world underneath our feet and how important it is to the health of our plants.

The basic soil biology concept is the density of soil organisms plus the diversity of soil organisms is gonna give you fertile and disease suppressive soils. That's the really slowed down version, but basically, diversity equals health and success. So, we'll just go over a couple terms that you might find in that book or when you're running around doing your research on soil cause you're so excited it. A category in the soil called a mutualist is going to be bacteria and fungi that have a beneficial relationship to the plants and so they are living off the plant or with the plant in some respect and taking and giving something else. So, some protect roots from diseases, nitrogen-fixing bacteria would be in this category as well as some fungi creating beneficial relationships and helping to deliver nutrients and water to the plant. So, there's a whole world of cooperation down there and all we really need to do is make sure that diversity exists in our soils and the rest will kind of sort itself out.

Alright, now we are going to be back with Brian to pick his brain about this same topic, pests and diseases and some of the most common pests you're gonna see in your cannabis crops.

Stephanie Syson: Okay we are back with Brian to talk about the wonderful, wonderful topic of diseases and pests. So, what are some of the common insects that we need to worry about when we're growing cannabis plants?

Brian Gandy: So most common are aphids. There's several kinds of mites and then there's some other -- thrips are not a problem until they're a problem. You'll find them more outside, but yeah, spider mites, russet mites, thrips and aphids are the ones we're gonna focus about. There's some new ones with hemp, but those are the primary ones of concern.

Stephanie Syson: Okay and how do we identify them or deal with them once we know that they're there? Or when is like a little bit okay but --

Brian Gandy: Yeah, so it's all about threshold management, Integrative Pest Management. You want to monitor and scout and know when there's a problem before it becomes too big of a problem. Especially with organic management, there's always some level of, you know, balance. I drew this awesome diagram just to demonstrate the scale. You can see aphids from here. Like you can see 'em; they're white, they're gray, they're peach colored, green, you know they're all different colors. They got a little teardrop shape; can't miss 'em and then spider mites, usually you see the damage first. You'll either see webbing and that's really when they've gone too far almost, but you'll see like speckling on the top of leaves, and you flip the leaf over and it's about the size of a pinhead. And you're like okay and you look closer and you can see 'em moving. So that's spider mite. That's about the end of our visual without magnification and I put this fine illustration up because to show the size of a russet mite. Russet mites are about the size of a spider mite's legs.

Stephanie Syson: Wow.

Brian Gandy: So you need a magnification of 60-100X to see them and they really look like, when you actually see one, this is a little \$20 microscope that plugs straight into the computer or your phone; super handy for field scouting or home scouting and just fun for lots of other reasons, but when you see 'em, they look kinda like a little grain of rice wiggling. And you're like well, how bad can that be? But they can cause 20-30% crop loss yield --

Stephanie Syson: Wow.

Brian Gandy: And potentially crop failure. And then thrips the ones you're gonna see more outside unless you're like growing peppers inside. They really like peppers for some reason.

Stephanie Syson: Yeah, they do.

Brian Gandy: Yeah. So, if you grow outdoors, look for thrips and you'll see 'em as these little cigar-shaped, it's a nymph or larva on the plant. They're flying, but when you're outside you won't know them any different from any other flying insect. When you see a little cigar shape, that's a thrip; really easy to control with a product called Spinosad. Monterey and it's like you can buy it at Home Depot and it just knocks 'em out. And another reason to bring up thrips too, especially if you're growing outdoors like here in western Colorado, we have a lot of hay production. And if you see your neighbors cutting hay, get ready for thrips. They are homeless after the hay gets cut and they will come straight for your plants. Again, pretty easy to control, but it's a cultural thing to look out for that now when they're -- when you see your neighbors cutting hay, get ready for thrips.

Stephanie Syson: And in a pepper plant, the thrips are often inside the flower. Where are they on a cannabis plant? Same?

Brian Gandy: Same. During the earlier stages like in the outdoor crop here like June, July, they'll just be kind of on the leaf. Like underneath the leaf, you'll actually see there's a tell-tale kinda like streaking that you start to associate with 'em that you generally see before you flip the leaf over. And generally, when you're scouting for bugs, you're gonna be looking on the bottom side of the leaf. The top side of the leaf is really waxy and has a lot of

protection and it's being hit by UV, so bugs tend to hide underneath and get closer to the sap and easier access to the plant parts they want.

Stephanie Syson: Okay and what do we do when we find some of these insects? How do we combat them?

Brian Gandy: Yeah, I mean the first thing is scouting. Knowing what's there and then from there, you know, there's some things you can do with nutrition; you don't want to overfeed too much nitrogen, or you'll welcome the aphids. It's really kind of a punch and counterpunch once you see a bug, you go to the book and find what you can use to control it. Unfortunately, these two have been around so long, the mites that we have today are resistant to just about everything which is really disheartening. Spider mites you can control; there's a lot of really nice like geranium oil and all these other different oil bases that are really good for controlling them. To 100% eradicate them is really tough. Russet mites, almost impossible to eradicate completely, but certain genetics have resistance and then sometimes you just get lucky and you won't see 'em for a year or two. Just basically look for the solution once you see the problem, but always be looking for, you know, what's on your plant. And that all said, you know, that's kind of a nuts and bolts way to think about it. The more holistic approach would be obviously prevention, but then, you know, if you have a biological environment, so what is this thing's natural predator? You can now buy their natural predators.

Stephanie Syson: Like bringing in your beneficial insects?

Brian Gandy: Yeah, you can order beneficial insects that literally are like assassins for these bugs which is really cool. You can maintain this balance in your garden and there's a constant war going on, but generally you can have the upper hand that way too.

Stephanie Syson: And are there certain plants that you like to companion plant with cannabis that will bring in the beneficial insects that might keep your negative insects at bay?

Brian Gandy: Yeah, I mean --

Stephanie Syson: Or just like the common slew of herbs and [cross talk] flowers, things like that?

Brian Gandy: There's not gonna be like one direct companion plant. I think that creating an environment for companion insects to thrive in -- I really like cosmos. They're really bushy and they have a lot of surface area. It's nice to just have an adjacent flower garden to your flower garden because a lot of those pests, the parasitic wasps and all that stuff will harbor. And if you release like ladybugs, people love release ladybugs for aphids and stuff, if they don't have a place to hang out, they'll just take off. Or they'll go up into your lights and into your ceiling. So, you gotta create more of an environment than any one plant particularly.

Stephanie Syson: Just a home for them to live for everybody to come?

Brian Gandy: Yeah and even like in an indoor container garden, like a layer of leaf litter on the top of the soil like a mulch, is a great place to harbor beneficial insects.

Stephanie Syson: Okay and so moving onto some other things that we need to worry about with our plants like funguses or bacterial infections, what is your experience with those?

Brian Gandy: Yeah, so we like to call them pathogens. It's diseases or afflictions outside of the pests. Primarily the biggest ones you're gonna be worried about are powdery mildew which is a great name for it cause that's what it looks like.

Stephanie Syson: For sure.

Brian Gandy: It looks like white powder on the leaf. There's a lot of different controls for that; Neem Oil is really good, Sylet Oil, milk we talked about. There's certain -- basically if you raise the pH, it can help control it. It's an

indicator, really more of your lack of control in the environment. So, when you start getting humidity spikes or you're in a really humid area growing outdoors, you'll see powdery mildew more often.

Stephanie Syson: So can we combat that with pruning and airflow and those things? That's what I would do with any other plant.

Brian Gandy: Yep, pruning, airflow, cultural management, that would be considered and again monitoring. When you see -- if you see powdery mildew, a lot of times you'll see it break out really bad on one part of the plant, go ahead and really just thin out as much of the afflicted material as possible and improve the airflow, improve light penetration getting through especially outdoors. The sunlight's really good to help fight it and then, yeah. I mean, spray when you have to but try to avoid it especially closer to harvest. There's only a few things that you can spray and it's good to get a grip on it sooner than later. And again, another issue with humid environments, is botrytis or it's just called bud rot which is another easy way to remember it and it's unfortunate because you don't typically know it's there until you harvest, but it's something to be mindful of if you are in late bloom and you see that you've had a lot of really humid, wet weather. Just kinda go crack a couple of the flowers open and make sure it's not -- you can't miss it. It just looks like a bad news situation and unfortunately it makes the product something you wouldn't want to ingest.

Stephanie Syson: Okay and how about other funguses like root rot? Is that something that we need to be concerned with?

Brian Gandy: Yeah, root rot is mostly an issue in like the earlier stages and it's really, again, indicative of your environment if your water's too warm or your environment is too warm at the root zone. Pythium is a really bad one and if you ever run into it, you can start to smell it. But you'll generally see that in clones and cuttings and the plants will either dampen off or they'll just be really sickly. It's pretty easy to rectify. They can even grow out of it. There's some enzymatic products that'll help wash it away from the root zone and kinda clean them up. Good overall general plant health and environment and you won't have that as an issue.

Stephanie Syson: Okay. So, what about nutrient deficiencies? Is there something we need to be watchful for or how can we tell if the soil that our plants are in are giving them what they need?

Brian Gandy: Yeah, so the best way to start to understand nutrient deficiencies is you're gonna see yellowing typically on some part of the plant and you want to get an idea of if it's on the new growth or the older growth or if it's on a specific part of the leaf like when you have a magnesium deficiency, you'll start to have what's called inner veinal chlorosis which means it'll start to get lighter in between the veins. And then it'll eventually turn like red, kinda rust colored and that's magnesium all day and it's really easy to straighten out with Epsom salt. So typically you're gonna see it in yellowing and yeah, the main thing is to look at is where on the plant it's happening and then go to a reference and say it looks like this and it's on the edges of the leaf or it's in the middle of the veins. You start to get those kind of identification characteristics.

Stephanie Syson: Okay and if there is a deficiency, what's the best way to go about fixing that? Do we add more compost? Do we add a specific fertilizer?

Brian Gandy: Yeah, the first thing to check is pH. I brought that up with the pH pen, so before you just jump to conclusions -- okay, so you see yellowing on the very newest growth of your newest tiny little leaves. You go to the book and you're like that's iron deficiency. I need to throw iron at it. What is actually happening is that your pH has gone out of the range where iron can be taken up. So, the best test to do, and we can demonstrate this later, is pour distilled water through the soil and then test the pH. And if it's outside of that 5.8-6.5 range, especially if it goes above 6.5, your plant can't take up iron. So that's the very first thing to do with nutrient deficiency is --

Stephanie Syson: Make sure it's bio-available --

Brian Gandy: Exactly.

Stephanie Syson: -- before we start dumping stuff on.

Brian Gandy: Exactly, and a little bit of compost will help, but if your pH is high, compost typically has a pH of 7-8, so you can actually counter the benefit. So, putting compost on it when you have a high pH problem -- like if your pH is low, definitely add compost; it should straighten right out. And when you're running more of an organic system, seeing a pH run off of seven is okay, but it's just something to be mindful of. Then after you've checked your pH and you can also look at the salinity of the runoff if it's toxic, but generally deficiencies you're gonna see yellowing and it looks kind of anemic. You're a little just short on nutrients. Then again, go to your reference, go to your available tool kit and, you know, find a good comfortable balance. And don't just throttle it thinking that's gonna make it better. You know, a lot of people see like a calcium deficiency and they wanna just add, add, add calcium and especially doing that organically, you're gonna lock up all the magnesium sites and actually make a magnesium deficiency out of it. So, again it's observe and interact; it's the permaculture --

Stephanie Syson: Principle number one.

Brian Gandy: That's the one. So yeah, just start to get a feel for it. You will see it when you start growing plants. These are fast growing annual plants, so they like to grow their whole life in a 100 days. So, when you see an issue, it's generally pretty quick. It can be short lived, but I would start with pH. That's one thing people really get antsy about and they're like oh, it looks like, you know, calcium deficiency. Well it might be, but it might not be deficient because there's not enough in the soil. Calcium's really easy to get into soil. It's probably pH.

Stephanie Syson: What do you think about for calcium like people will crush up eggshells and put those in their potting mixes or around their plants or something like that, how do you feel about that?

Brian Gandy: Can't do that enough.

Stephanie Syson: Okay.

Brian Gandy: Eggshells are so slow release that -- and calcium is immobile in the plant, so you can't really overdo calcium organically. Because it's immobile in the plant, it's also harder to liberate from soil so it's again why pH is really important, but crushed eggshells take forever to actually release all the calcium. It's great fodder for top dressing or mixing in the compost.

Stephanie Syson: What are your thoughts on compost teas for cannabis plants?

Brian Gandy: Do it.

Stephanie Syson: Do it. What do you make your compost tea out of or other plant fertilizer teas that you have experience with and liked?

Brian Gandy: So, the base compost tea recipe is -- I've done it so many different ways now, but a five-gallon bucket with an aerator, with an air stone.

Stephanie Syson: Like for your fish tank.

Brian Gandy: Yep fish tank air stone. Put a handful or two of compost; more is not more. You just need the basic biological compounds in there to fire them up and you fire them up by adding sugars in the form of molasses usually. And then add little bit of kelp and then also some fish emulsion and those three ingredients all kinda trigger different biological activity between fungus and bacteria. And there's a lot of different recipes to look up, but really I would say just two tablespoons of each is enough and you'll see it just froth up. And after it foams up at about 24 hours, filter it and then dilute it and then add to the plants. But that fires up the biological activity in the root zone and you can't go wrong. You can't overdo it and with foliar sprays too, you can also add a compost tea, but yeah, it's excellent and it makes for better quality products. Like I was saying I've experimented a lot

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with hydro and full hydro or hybrid and adding compost teas into the finishing cycle of even in a full synthetic hydroponics run, just takes the quality way up.

Stephanie Syson: And what about, you mentioned foliar feeding. What would we or how would we know the difference in if we need a foliar feed versus ground fee of compost tea?

Brian Gandy: A compost tea, you know, I think low and slow always, you know, it's just a nice thing to do for the plant especially it's a good preventative measure for PM or different things that happen; powdery mildew that happen on the plant do surface and the plant takes up that holistic and nutritive energy from the leaf. So, if you ever see it becoming -- it's phytotoxic, you'll kind of see it looking like it doesn't want anymore. Stop doing it, but like a really low rate once or twice a week of compost tea foliar is just, I think it's better preventative then corrective. Some things like magnesium and calcium can be rectified very quickly as a foliar before you can do it as a root.

Stephanie Syson: Okay.

Brian Gandy: There's not one clear rule for that.

Stephanie Syson: What a great talk with Brian. I really appreciate all of his wisdom and experience at growing this beautiful crop. Now I'm going to talk about my favorite recipes for pest management and again, this is for cannabis but it can also be for any of your other plants that you are wanting to make sure are healthy and happy and might be struggling with one thing or another. So we're gonna go over some pest control recipes, ways to increase the nutrition in your plants and in your soil, dealing with funguses and a couple of the biodynamic preparations that I like to use in my garden for pest control specifically.

Garlic fire spray: this one is my go-to first step spray that knocks all kinds of things out. You just need to be careful with all these sprays that beneficial insects are also affected by them, so we really want to investigate and make sure that we don't see any beneficial insects already doing the job for us and we don't hurt them in the process. So, you can pause this slideshow at any point or take a screenshot or whatever you would like to do so that you can get these recipes written down. The only thing to be careful with this one also is depending on how many peppers you use; it can get pretty spicy. So, when you have this in your strainer or after you've strained it and you have it in the spray bottle, it's going to be very spicy in the air. So be careful as you're breathing. So as with this recipe and a few others, you're just gonna blend up all of this stuff in a blender: the garlic and the hot peppers, the vegetable oil and the water. You blend it all up, you strain it and then you can put it in a spray bottle. I would add the soap at the end, not in the blender. I'm sure you can surmise why.

The smother oil soap, this is just soap, vegetable oil, and water and so this is going to smother the insects so that they can't breathe and respire efficiently which is very useful. Neem Oil is going to be my absolute end-all if no other sprays are working and if I just, I don't want to get rid of the plant and I'm not comfortable with the populations of insects that are attacking my plant. Neem is gonna be a spray that I will use in order to really, really kill whatever insects are out there. So again, be mindful this will also kill your beneficial insects.

So herbal teas for your plants. Most of the viewers at home know that herbs are one of my most favorite, favorite categories of plants and we use them so effectively for us, so why not use them in our gardens as well? And they work very similarly. Comfrey which lots of you might have or if you don't have it, I'm sure a neighbor does, and they probably would be willing to give you some. Comfrey's just an amazing nutrient accumulator and compost activator. Super high in different vitamins and minerals. It helps to encourage rooting; I like to use it on transplants, but it's just like a nice, nice nutrient-vitamin, root-stimulating dose for anything that you're growing that -- not only as a problem fixer but also just as a maybe once a month, maybe every other month soil feeding that will give your plants that extra boost that they will appreciate.

Stinging Nettle: Stinging Nettle also super high in vitamins and minerals. This is a great one for you to take as well inside your body; it's offering you those same things. So, cannabis, we talked about in earlier modules, is a heavy feeder. So, it loves a lot of compost and a lot of different nutrients and so adding a little bit extra in the form of Stinging Nettles is gonna be a great way to boost that fertility.

Chamomile tea is something I use mostly for its anti-fungal property and so you're gonna make this tea just like you would make the tea for yourself. You're just gonna let it cool and put it in a spray bottle. So, this is a great spray for dampening off disease which Brian talked about just in the video before in the seedling stage or it's called root rot. A lot of little funguses live in the soil and out of balance, they might take our little seedlings down. So, I like to spray it on my flats of seedlings to prevent those funguses or to treat those funguses if I feel like I'm seeing them.

Willow and Cottonwood Tea: So, this whole family of plants have really potent root stimulants. I like to use a willow tea to root different things. So, if you were gonna be starting your cannabis plants from cuttings, making clones from another plant, it would be nice to soak those roots in some willow water for an hour or so. If you're propagating hardwood cuttings like elderberry or things like that, you'd soak them for much, much longer. You can also use this infused water to water your plants. It's slightly anti-fungal, so it's gonna be great for making sure that your new cuttings don't get too much fungus in them too early and also increase that root growth.

Horsetail or Equisetum: One of my favorite plants for structure and we use it in our bodies for bone health and things like that, but wonderful for the garden. Wonderful to help treat fungal problems and increase more light in the plants, as well as any plants that just seem really like leggy and they, don't want to stand up and they just don't look like they have a lot of structure to them. This is a great feeding either inground or I really like to use it as a foliar feed. You do have to be a little bit careful with things high in silica to not spray them as a foliar feed in the middle of the day cause they can burn the plants because they bring in so much light.

So, for our biodynamic preps and the one febius (?), equisetum is also a biodynamic prep, so I recommend you dig into the ways that that's created in the biodynamic practices. One that I find really valuable in these times of fungus or if you're growing in a greenhouse and your light just isn't sufficient or it's in the early season and it's -- here in Colorado, we get some cloudy, rainy, cold spring and so this is a great preparation to be used during those times to again, increase that light. It is the spray of light; it helps promote the vigor of the plant and it is able to help reduce the susceptibility to diseases in lots of different plants. As I wrote here, it's really important to have in greenhouses or crops grown under shelter, because it's gonna help make up for that loss of light

and also in times of humidity, Brian mentioned that bud rot, botrytis is something that you need to worry about later in the growth of the cannabis plant if it's been really moist and really cloudy or cool and so, this is a great time to use corn silica as a spray to kind of combat that damp, dark time that might lead to fungal disease outbreaks.

There are lots of other biodynamic preps; as most of you know, I am a biodynamic grower and I really believe and feel that biodynamic farming is a beautiful way to cultivate our plants at a much higher level than can be seen with other styles of cultivation. There's a whole slew of different preps and I think me, as an herbalist, was immediately attracted to them cause a lot of them come from different herbs. All the compost prep comes from different herbs and they activate different things. It's a long, long conversation that we could have many modules and courses on, so I advise you to look it up and see how that feels for you.

And that brings up to the end of our pest and disease conversation. Hopefully, you are less nervous and more excited to get growing and tackle anything that comes your way. The basic takeaway is diversity equals resilience. Diversity of plant species, insects, bacteria, fungus; that diversity will give you the resilience and health you're looking for in your crops and should something come up, hopefully, we gave you some great skills to look at. Please see our resources file for lots more info. Thanks for watching module six. I hope you feel ready to tackle anything that comes your way. Our next module is what you all have been waiting for harvest time.