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>>Next on HomeGrown, we'll learn how to grow leafy greens and salad vegetables. Whether you're an avid gardener or you're just starting out, we'll discuss everything you need to know about leafy green vegetables like chard and spinach, and how to take those yummy salad vegetables from seed to your table. Stay tuned!

>>Welcome to HomeGrown, I'm Rebecca Cressman, and today we're talking about growing greens, like spinach and chard, and salad vegetables, like of course lettuce and celery. With me today here at the beautiful BYU Terrace garden is Dr. Frank Williams. He's with the plant and animal sciences department at BYU. Thanks for being here Dr. Williams.

>>Glad to be here.

>>First of all, what do we mean when we talk about leafy vegetables?

>>What it really means, we used to talk about, was they're pot herbs. They're leafy green vegetables, but they're called pot herbs simply because they were cooked. Today we've changed that. We eat raw lettuce, we eat raw kemp. Years ago, no one would eat that raw, they always had it cooked. So they were called pot herbs. Where the lettuce and that and our leafy green vegetables.

>>So most of these—back in time—would have been cooked like in a soup rather than eaten raw?

>>A soup, or cooked and then reused on a plate like spinach, you know, with vinegar and stuff like that. So they were always cooked rather than fresh.

>>Now what kind of nutrient value do we find in these greens?

>>Other than the cold crops that we have, and some of these are cold crops, they're by far higher in nutrients, vitamins and that, because we are eating the green, leafy leaf. And that always has the greatest amount of nutritional value in it.

>>Now what about these? Are they considered warm or cold season crops?

>>Both. So some will be spinach. Of course it's a very cool season crop. Spinach, if we don't have it—if it gets too warm—it goes to seed. So it's usually a crop that is grown where it's very cool or very early in the spring, so we have it off before it gets very warm. And that's why a lot of times we recommend that rather than eating spinach, we use Swiss chard. Same flavor, same use, but it'll grow all year long. And so the spinach is just a very short crop. Swiss chard is a long season crop.

>>And we have some samples of those. Here is our cud spinach. Very beautiful and green. And this is the Swiss chard?

>>This is Swiss chard. Rhubarb Swiss chard, because it has the nice red color to it. Where and it looks a lot like a beet green. Same family. And so this is getting to the point where it's just about too old to actually cook, but we still put it in salads and use it fresh.

>>That's the first time I've ever seen that, and the yellow...

>>The yellow is another Swiss chard that is like this, they still call it rhubarb chard, just a different variety.

>>Well let's talk a little about growing spinach. Because we've all heard how healthy it is. So when we decide to grow spinach, what type of soil preparation should we be planning on in fertilizer?

>>It doesn't use a lot of fertilizer, because it, we harvest it very early, and it doesn't put out a lot of yield, so it doesn't take an awful lot, as we mentioned, it probably takes about one pound per hundred square feet. Beginning of the year, worked in. And that'll take you through the growing season.

>>Now what about if you're getting ready to plant the spinach? Are there any tips we should know about in terms of depending on the season that we grow it?

>>Make sure it's cool. Make sure it's during the early part or in a warm season, in a warm climate where it's real warm, we may plant it in the wintertime. And so it's grown as a winter crop in some of these areas. If you have very high temperatures in the summer, you'll use it as a winter crop.

>>Speaking of winter, I've also understood that there's a trek in the sense that if you want to harvest early in the spring, you can actually plant these in the fall, right before winter? So tell us a little bit about that.

>>There used to be a farmer in Utah who would plant it in the fall, and in the spring it would come up. Then it would be frozen a little bit on the tips, and then in the spring, when it'd start to grow again, he'd pick it and he'd brush off the little frozen part. He got to the market very early; he could charge twice what everybody else would do. So it can be and will survive the winter.

>>Does it just lie dormant, I guess, underneath that?

>>Just lies dormant, and if there's snow, it's even better.

>>What about spacing? What do we need to think about?

>>One to two inches, in row, maybe 10 inches between rows, 10-12 inches. Just so you can get in and out of the row. But they can be very close together because we're going to be thinning them for a period of time.

>>How about daylight? How much light does spinach need?

>>Now spinach—and we found that some of the cooler season crops, those would take cool temperatures. They can have a little shade. So 4-6 hours, it's always better to have more, but we can grow some of these leafy vegetables, the pot herbs, in the shade. More shade than we would others.

>>Alright, talking about planting it, would you recommend that we actually start from seed?

>>Seed is by far the best, because it comes up very fast. It's wintertime. Cool season. So just put it in as a seed, and it'll do just fine.

>>And how do you recommend we actually plant it? Should we be going out and making rows?

>>You can always make the furrows, by far, the easiest for us. More than anything is if you just plant it how you like to do it. If you like to plant it in circles, fine, I don't care. Plant it in a circle. But be just so you have enjoyment in and around your garden.

>>And do these need to be heavily watered, or how much should they get?

>>They like a lot of water, because they're a spring, cool season crop. So they get quite a bit of water that is already in the soil. So we don't have to water them too early, but yes, they like to have a good moisture content in the soil.

>>And a lot of us are always thinking about fertilizer and in terms of how much and how frequently. What would you recommend, even though its not taking a long time to get a crop?

>>Just very little. What's in the soil usually will take it through. And so we just fertilize it very lightly.

>>And how long would it normally take to become mature?

>>Well, now, in our area its probably 2-3 weeks. After it has started to grow and get a pretty good size, it's a very short time. So the total season's probably, oh, 3-4 weeks to a month and a month-and-a-half.

>>And that would depend just on what climate, where you're living at?

>>How warm it gets. Soon as it gets warm, it's going to go to seed.

>>So it sounds like it will be a different amount of time. Is there a way for us to just recognize looking at it, that it's ready to pluck?

>>When it's big enough that you think you can eat it.

>>And these ones we're saying are about 4 inches, 5 inches high?

>>Yes. And then you can see that they're getting to the point where we may like it a little older and you may like it fresh. But different sizes just how you like it.

>>Well, looking at this, the average spinach, when you're plucking it, do you leave the roots underground or how would you harvest it?

>>Oh, just pull it out. And if the roots come with it, we just cut them off or pull them off. So just pull them out is the guide.

>>And we typically use them, maybe the top 2/3 of the plant?

>>Yes.

>>What if I waited too long and I missed my opportunity to plant the spinach in the summer?

>>Now we can plant if you have to live in an area where there are cool winters and they don't have real frost. We can put it in as a winter crop and harvest it during the wintertime. As it likes cold temperatures. Or we can plant it in—it'd actually be frozen a little bit—and harvest it, get it started growing next spring. And we can still harvest it a little. A lot of times there will be little dead leaves on the very end. Rub those off and it's very usable.

>>Now I've heard that to some vegetables that we can actually treat like a perinea. So you can actually let it go to seed and actually bury it and then bury it in the spring?

>>This one is a biennial. But we use it as an annual, and we really want to start over again, because first of all, it gets out of hand and starts moving around. We don't know if there's virus in the seed, when it falls. So we want to plant this every year, new seed.

>>And what about the different type of pests? There's so much foliage. Dark, leafy spots. What are we worried about when it comes to pest infestations?

>>Usually there are very few pests that occur on spinach because it's there for such a short period of time and it's in the ground growing when it's very cool. Pests, most insects, are very responsive to temperature. As it warms up, they become more and more active. So this usually is out of there before you have any problem with pests.

>>That's good news! Now let's talk a little bit about Swiss chard. These are two beautiful species that you talked about being a rhubarb. Are they warm or cold climate crops?

>>Cool season crops when they're planted. So they can take temperatures that are cooler. But they will grow all summer if you're in a warm temperature area that has even 100 degree temperatures, the Swiss chard will still continue to grow, and you can harvest it. And as long as you continue to harvest it, it will continue to grow. And that's one of the things we have to remember with these crops, with many crops is when we stop harvesting, they stop growing. They stop producing. And so, continue to harvest it and it'll go right through the year.

>>We're going to hold this up for just a minute, because I think some of us are less familiar with this. Which part of the plant are we eating?

>>Primarily, we eat the leaf. It's a leafy vegetable. The stems are usually discarded because it's a little stringy in that. So we're really looking at just using this tip.

>>So beautiful! You almost want to just leave it for decoration at least.

>>It is, sometimes it's used as an ornamental.

>>What about the soil requirements for growing Swiss chard?

>>Swiss chard has about the same requirement as the spinach. It's a very...just any soil will work, as long as it has a little organic matter in it. And we can work it and get the seed planted.

>>What about fertilizer? And especially, we've talked before about successive planting and you wanting to grow this throughout the season. Do we need to keep fertilizing this frequently?

>>What we should say is we fertilize in the spring before we've planted. We usually, as we mentioned, we use the one pound of nitrogen. Then we watch the plants. And with this being a long season plant, we may have to come in and side dress just a little bit alongside of it. And we may have to use different types of fertilizer. Use the fertilizer that's recommended for your area. Extension service usually can tell you that.

>>Now, you talk about using the leaves, that we actually eat this. Once we harvest off this, is it bad? Or can we just continue to harvest more and more leaves off the same plant?

>>What we'll do is we'll take the leaf off the same plant, but we take the entire stem and it produces a crown and the leaves will come up. So what we'll do is we'll harvest it this size, then we'll just cut this and discard it.

>>Okay, and how close can they be planted? What spacing do they need?

>>Usually it's with six inches is about what we'd like them at. In the row, between row 10-12 inches.

>>And how much daylight, sunlight, does Swiss chard need?

>>They're...again, as much as you can give them, but about a minimum of 4-6 hours of direct sunlight.

>>Now we talked about growing spinach from seed. What about Swiss chard?

>>Same thing. Excellent from seed. In fact, there's no _____ to transplant.

>>Alright. So get the soil ready, the furrow ready and spread out the seeds. How much watering does it require?

>>It will take as much as you'll put on it. So we keep the soil moist for it. But, again, probably with Swiss chard with water...depending upon the temperatures you have. Anywhere from 4-10 days.

>>And are we expecting it to be ready for harvesting? Six weeks? What approximately are we...?

>>About the first harvest would be 6-10 weeks from when it started to come up and was starting to grow.

>>And do they have different risks when it comes to pests and diseases than spinach?

>>Well, these will have aphids will get on these. Just like they do any other kind of crops. Kind of hiding in there. But that's about it. And we can have some little cabbage loppers that get on them. But they don't have a lot that are bothersome.

>>Cabbage loppers. I've never heard of that. Is that a worm?

>>A little worm. It's a little green worm. You'll see a yellow butterfly. That's it.

>>Now we have a lot of other green leaves here, kind of samples on the set. I've never seen this. This is kale?

>>Kale.

>>Tell us a little about kale.

>>Kale is a crucifer crop. Kale is probably the most nutritious crop that we can have.

>>And you say crucifer, like cabbage?

>>Yes, it is a cabbage. Can't tell them apart when they start to grow. And it's found usually in soups—cooked, of course. But some people are even eating it. But it's very bitter. And so usually it's hard to get our children to eat it. A fellow I worked with, asked him how he got his children used to eating it. He said he put a piece in their beans. He'd put one piece for a year, then he'd put two. Finally built it up so they could eat it. Very slowly.

>>Well collard greens are kind of familiar to different parts of different countries. Let's bring out a sample of collard greens.

>>Collard greens are, look at these here.

>>This is green chard.

>>The collard greens again are the same family, if you look at it. They're in the same family as kale.

>>You can almost see the big, broad leaves.

>>You can see the big broad leaf. Again, we eat it as a cooked vegetable. Part of the problem with these are they're a little slimy. But they're a good one to grow. Excellent for harvesters. And most of these, the only thing that will bother them are aphids.

>>Okay. And in great nutritional value?

>>Great nutritional value.

>>Let's talk a little bit about salads, because I think more and more of us are stepping out of the iceberg and finding the value. So what are we learning about in terms of the nutritional value of these types of salad greens?

>>Well again, they're always—they're green. So they're going to have nutritional value much better than those that are not green. Or if other parts of the plants that we might eat. So they are nutritional for us. They have vitamins, minerals...the iceberg, a lot of people don't like it. But it has about as much as the rest of them, because it is nice and green. But the leafy vegetables are ones that we seem to like that right now more.

>>Now are these considered? We have a lot of samples here of all kinds of different lettuces. Are they considered warm or cold climate crops?

>>These are all cool season crops. You can see this one.

>>Looks like she needs a hairdo, doesn't she?

>>Yes. This one is grown hydroponically. So it's grown in water. And it's one of the ways to get to the early market, probably grown in a greenhouse.

>>Now you can see the red tinge on there. This is called a red leaf lettuce?

>>The leaf is called Savoy because it has the crinkles to it. So we have all kinds of lettuce.

>>Now we have romaine here. Okay, we've got a sample of that. This is really quite big. So this would be our romaine leaf?

>>And this is much better for the homeowner to grow, because it's a little hard to get the iceberg to form the head. If it's not handled just right, the head will be very loose and it'll be leafy. So most people find that this is by far easier to grow for them than the head lettuce. So this is much better to grow.

>>Alright, we've got romaine. We also have the butterhead, which is very delicate looking. I'll try to keep the display pretty, but I don't think I'm going to do very well. The iceberg wants to roll down. This is the butterhead? And it's very soft. Delicate.

>>And that's about what a head lettuce looks like if we grow them in our garden. So you can see here's the loose part of the lettuce. And it's very nutritional. We cut this and put it in our salads. Now, one of the things I might mention as a tip, if you smell it, if it has an odor to it, it'll be bitter. It means it hasn't had enough water.

>>So you want it to be very neutral?

>>That's right. When you go out in your garden, you want to smell it. Or if you want to go to the grocery store. Smell it. If it has any kind of harsh flavor smell, don't buy it.

>>When we're growing leafy lettuces like this, what type of soil prep do we need to do?

>>This is one crop that likes a basic soil. It does not like an acid soil. It likes to be grown in an area where it's hot...warm. Even though it's a cool season crop, we can grow it where we supplementally irrigate. Grows very well. So we have to be very careful, though, because most areas that are high in moisture, where there's a lot of rain, have acid soils. So they don't like acid soils. So usually we have to grow it in a basic soil.

>>I don't think I'll ever pick up lettuce again without giving it a good smell on that. What about certain types of pests and other diseases that might be risking our harvest?

>>Aphids, again. Aphids are always there. Leaf miners, its another one that they'll get. Mites.

>>What about planting the lettuce. How much light and maybe how much space do they need?

>>They don't need an awful lot of space, but they don't like a warm soil. You have to plant them in a soil that's less than 60 degrees Fahrenheit. If you plant them in a warmer soil, if it gets above 75-80, they'll go dormant. The seed will go dormant, and it won't germinate. And that's what happens to a lot of homeowners. They plant it in a warm soil, and then it ends up and they won't germinate, and they end up without a plant.

>>Now in terms of planting lettuce seeds, I remember them being very, very small. So what are your recommendations for planting?

>>Mix them with sand. A little sand in the package, it helps to thin them. You can if you want, you can grow transplants of lettuce. Putting them in a little container. And grow them from the seed there and then transplant them out before they get very large. But again, they have to be in a cool soil.

>>Now you talked about mixing it with sand. I've seen you before open up a pack of seeds, add sand to it, shake it up, and then use that.

>>Spread that out and it automatically kind of thins it for you.

>>What about activating seeds on ice? I don't know more about that either.

>>That's because it is a cool season crop and the hot soil will make it go dormant. Farmers have found that if they can sit it on a block of ice for 24-48 hours, cool the seed down, they can put it in a little warmer soil. So if your soil is starting to get warm, if you set it someplace like that where it's real cold, then it will germinate.

>>Now you talked about these liking moisture. How often should we plan on watering these? What kind of fertilizing is it ongoing?

>>The fertilizer is a lot...we want to fertilize it in the spring like we've mentioned. But that'll take some, we may also put some side dressing on it so that we put another pound on. They like a lot of fertilizer like they like a lot of water.

>>When you say side dressing...?

>>That means we just put it by the side of the plant in a little furrow, maybe two inches below the surface. Dig it with a hoe. Put it in this little furrow, cover it over. And the roots will move out into that. Plus when you water it, it moves out into the ground to soak.

>>Now all of these lettuces are different sizes. And I think if you're unfamiliar, you might not quite sure know when to harvest them. I mean, the butter is very small...how do we know when it's ready to be plucked?

>>The general rule of thumb is, when do you like it? So try it at different stages. Because as it gets older, it will become stronger and it will have a stronger flavor. The younger it is, the less flavor—that strong flavor it will have. So get used to harvesting it over a period time and just experience when is the ideal time to harvest it.

>>Occasionally when I buy a head of lettuce—you know, we're always encouraged to rinse it well—go leaf by leaf. What type of pests are actually attracted to lettuce and we should be watching for them?

>>Aphids will get down inside here. Mites you can't see. But aphids you'll see down inside. More than anything, why we like to rinse it, though, is it gets sand and soil in there from the irrigation will get inside here and then it becomes gritty. Of course, so we're trying to clean it up.

>>What would be your best recommendation to get rid of the aphids?

>>Ladybugs are a good one. Of course, if you want biological control, we want to use some ladybugs. We can use soap, safer soap, it's called. Spray it with that. Just rinsing them off with water during the day, if you'll go out with a hose, rinse them off, that knocks the insects off. And then there are chemicals if you are willing to use some of them very carefully, you can buy chemicals that will take them away.

>>Oh, you have a lot of experience growing all of these. Any specific challenges or cautions for us if we want to try growing lettuce?

>>The main thing is the soil temperature. Making sure that you've either treated the seed beforehand, or that you keep the seed cool or the soil still cool and you put it in. Same thing with the spinach. We want to make sure we're going to get them early so that it germinates.

>>one of the vegetables that are commonly found in salad is one that we use a lot when we're feeding our kids snacks, and that is celery. And I'll pick this one up and bring it over, we have a sample of a celery heart. And the celery plant itself. Let's talk a little bit about how long it takes to actually grow something as tall as this.

>>This is a fairly long season crop. And, requires a lot of water. It's the one crop that we can't grow from seed, it has to have transplants. And so you have to either have someone in the area that grows the transplants, or you have to grow them yourself. The seed has to be soaked in water for at least 24-48 hours. And the soil you have to put in has to be extremely moist. This plant will not grow if the soil gets dry. So it takes a lot of water.

>>So when you say "long time," you mean...

>>Long time. Oh, you know 4-5 months. And we used to—you'll notice—it used to be that we loved having our celery like this. Blanched. And so we used to grow it actually inside, under benches in the basements and that. It will still grow without the light, but it's white. Nowadays everyone wants the green color. So we have what's called a self-blanching, so it doesn't get too green, and we can grow it just like this outside.

>>And are these warm or cool season crops?

>>Cool season crops. Most of these leafy vegetables and that are going to be cool season crops.

>>How about the nutrition value in celery?

>>Very good. Lots of roughage, for one thing. Because you get all of the vascular bundles that you have to consider that are in there. But it's a good one because again, you're eating part of the leaf that's green, so it's going to have the nutritional value.

>>And most of us live in areas that don't necessarily have a five-month growing span. So I understand that very often, you recommend starting these in a greenhouse. How would we do that?

>>What we would do, as I mentioned, put them in a greenhouse. The soil has to be extremely wet, and because this is the only one that we have, that takes almost growing in water. So starting in a very moist soil, and keep it moist once it's germinated and when we take it even out into your garden, you have to plant it in a very wet soil, so usually what we do is we'll actually plant it while we're watering, and we'll actually work in the mud to plant it.

>>Now you mentioned that blanching it reminded me of boron, which is used sometimes to protect color. Do we need boron for celery?

>>Celery will get—if we get into the middle like this—we get brown spots and black spots. So you need to put boron on these.

>>And how would we find out how much boron we should be adding to our garden?

>>Well, it's awful hard to get it. Usually what we do is just make up a mix of borax soap or some soap that has the boron. Most of the soaps nowadays have boron in them. So a little bit of soap in a bucket, just spray it on and it'll be sufficient.

>>We talked a little bit about starting in a greenhouse with very moist soil, but now when we're ready to take it from the greenhouse into the garden, what should we be watching for in that transplant process? What should we be doing?

>>Cool. They want to be a foot apart. At least 12 inches in all directions. And as I say, plant them in mud, and have it very wet.

>>And when you say muddy, does that mean wet enough so that we step in, our shoe stays down and our foot comes back out?

>>That's exactly right.

>>And how will I know it's ready? Is it just by height?

>>Height. Yep.

>>And is it typically going to have a darker shade of green, the more ripe it is?

>>Uh, no, the way they are developed now, the self-blanching one will have about that light green color at all times.

>>What if we're interested in blanching it ourselves?

>>Well it's very easy, just wrap paper around it. And go out with some paper sack, something that's fairly thick. Wrap it around the plant as it starts to grow, and it will be blanched.

>>And for those who don't know what blanching is...?

>>It means no color. White. Is all it means. And what it really is that growing of the plant in the absence of light.

>>Okay, great. Now what about certain pests or diseases that are affecting celery?

>>They'll have some diseases that affect them. Rust is a primary one. Aphids, again, mites. And they get thrips. Thrips are just little insects that you can't even see but they make little tunnels in it, so that's part of the problem.

>>So when we're harvesting them, we should wash them well?

>>Just wash them well and eat them. Its not going to bother you.

>>And how can we get rid of the thrips?

>>Again, if you have ladybugs, or a lot of people will get praying mantises, and they'll have those in their yard, that helps to keep them down. And you can, if you want, you can also get chemicals that you can spray them with, and that will keep them out.

>>And if you let loose the ladybugs and the praying mantises, will they pretty much stay in that garden area?

>>No, that's the problem. They don't realize that you want to soak...so as soon as they've consumed what insects are there, they'll be gone and then you've got to redo it. So what we do is we'll usually release them about once every week or every two weeks. There are suppliers that will send you these in the mail, that are just hatching and you'll put them out and they'll stick around for awhile and then they're gone.

>>Alright. A lot of fun in the garden for the family when you're out getting the ladybugs. What about any other special cautions we should have or things we should know when we're growing them?

>>Just this moisture. They need a lot of water. They'll start to crack, they'll start to have these physiological disorders if you don't have water.

>>oh, that's a sign of needing more moisture? Thank you so much! Well we're almost out of time. But before we go, let's review a few of the simple things we can do to make sure we get the best harvest possible. First, be sure to prepare the soil in the fall, after your last crop so you can get out early the next spring and get growing your spinach and other cool weather crops. Next, you can harvest your Swiss chard all season long, but remember to side dress it with fertilizer after the first month. Also, lettuce is very sensitive to the heat, so plant early when the soil is cooler, and remember to activate the seeds with ice. And finally, celery likes lots of water and boron and can take up to 5 months to grow, so start early in a greenhouse. That's about all the time we have for today. For more information on this and other episodes of HomeGrown, or to order a copy of the series, be sure to log on to HomeGrown at www.byubroadcasting.org. Thanks for Frank Williams for joining me today, and thank you for watching! And remember, everything's better HomeGrown! Goodbye.

>>On an upcoming episode of HomeGrown, we'll learn how to grow herbs. Whether you're an avid gardener or you're just starting out, we'll discuss everything you need to know about how to grow all kinds of herbs, like basil, cilantro, parsley, sage and thyme, just to name a few. And we'll also learn how to use herbs in homemade remedies, like lythol. Be sure to turn in.

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