

Fall Produce Storage

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SPEAKERS

Speaker 3, Christa Hartsook, Dr. Ajay Nair, Olivia Hanlon

C Christa Hartsook 00:15

Hello, and welcome to the Small Farms Podcast, a production of the Small Farms Program at Iowa State University Extension and Outreach. Our podcast covers the opportunities and challenges associated with rural life.

O Olivia Hanlon 00:29

In this episode, I visit with Ajay Nair, Extension Vegetable Specialist with Iowa State University Extension and Outreach. Today we are talking about harvesting and storing fall produce. I'm Olivia Hanlon, Farm Food and Enterprise Development Education Extension Specialist and we hope you enjoy the show. Ajay, welcome. We're glad to have you joining us today.

D Dr. Ajay Nair 00:49

Thank you, Olivia. Always happy to be with you.


O Olivia Hanlon 00:52

So Ajay, like I said, welcome back. We haven't had you on in a while. So could you start with reminding our listeners what you do in your role here, Iowa State?


D Dr. Ajay Nair 01:01

Sure. I'm an Associate Professor and Extension Vegetable Specialist in the Department of Horticulture, at Iowa State University. My primary responsibility is to work with commercial vegetable producers here in the state, helping them optimize their system, and that can be through improving the soil, selecting the right cultivars to plant, integrated pest management,


you know, high tunnel production, so anything that has to do with vegetable production, I work with that. So commercial growers, local food enthusiasts and local food, entrepreneurs and ag business so just provide support in terms of commercial vegetable production.

 Olivia Hanlon 01:39

Absolutely, Ajay, I know you're our go to guy when it comes to vegetables. Let's dive into fall produce here. What kinds of things are people likely harvesting this fall around this time?

 Dr. Ajay Nair 01:51

Sure, fall is an exciting time Olivia because this is the time where you have stopped planting and you are busy harvesting what you planted earlier, so no planting anymore. Weeds are kind of coming down and you know they're not much of an issue, and it's all about harvesting the great produce which we have out there. So in the fall many of our growers at this time of the year, they are harvesting crops such as winter squash, I know both acorn and butternut squash that's coming out of the field. Many growers are getting ready to harvest carrots you know that that is also a crop that is very popular in Iowa many growers grow it. Other crops would include onions. Onion harvest usually start somewhere in August, but you know, depending on when you plant it, you might be harvesting it even now into October. Potatoes, that's another crop. Also, sweet potatoes. So there's a lot of stuff that is coming out of the field. There are some warm season vegetables too, which are kind of at the far end of the production Think about peppers and tomatoes, we're almost done harvesting them maybe one harvest left before the frost, but otherwise some of these winter crops such as squashes and carrots and onions and potatoes you know those are coming out of the field right now.

 Olivia Hanlon 03:08

Okay, so Ajay, that was a long list. What do we need to keep in mind when we're harvesting those fall crops?


 Dr. Ajay Nair 03:14

Sure. And I would like to add one more crop to longest list, another fall crop though you know think about cabbage. You know, that's a big crop for fall. Some growers even to broccoli and cauliflower in the fall so that's also you know, a crop that's actually starting to be harvested. So, a grower might harvest it up until almost until like middle of November. So those crops are also there.

 Olivia Hanlon 03:35

Okay, sounds good.

 Dr. Ajay Nair 03:36

 Dr. Ajay Nair 03:30

So in terms of what kind of things we need to keep in mind, these fall crops majority of them will be sold fresh, which is okay and many will be sold after a brief storage period right. So crops such as onions and potatoes, winter squash, sweet potatoes, they all can be stored they can be kept in proper storage condition for extended amount of time and sold slowly. So in those, we have to be absolutely careful while harvesting that we create or do less damage to those crops when harvesting. Cabbage included, you know, onion and carrots, we don't want to bruise the carrot or bruise the onion or we don't want to peel the skin off of the potatoes, of the sweet potato too much that it kind of creates an entry point for pathogens and other microorganisms. So harvest gently and harvest carefully leading to less bruises and less cuttings and less injury. Because that way these fall produce crops that are tended to be stored for a long time can be stored properly. So less bruises means prolonged storage.

 Olivia Hanlon 04:39

Okay, Ajay, so along those lines like you said, some of these might be a first round harvest. Some of these might be a multiple round harvest and you're getting a little tired of them at this point. How do we go about storing an overabundance of crops that we have that we harvest this year?

 Dr. Ajay Nair 04:56


Sure. Many of these vegetable crops I mentioned have optimum storage conditions. Crops such as tomatoes, peppers, some of the squashes for them, the storage condition is about anywhere from 50 to 55 degree Fahrenheit. Whereas crops which are stored at lower temperature, think about crops such as onions and carrots and potatoes. There now you're looking at temperature between 30 to 40 degree Fahrenheit. So the first thing to recognize is what kind of vegetable is it? Is it a warm season vegetable, is it cool season vegetable, and then put them in proper temperature and proper relative humidity so that they can be stored for a long time. Light also plays a factor. So think about a crop such as potato. We all know what happens when we put potato on our countertop, right? If light keeps hitting on it, and it becomes green. And that's because of those glyco alkaloids that produce and once the potato is green, it's not going to go back to its yellow or red again, it's green.

 Olivia Hanlon 05:51

Absolutely.

 Dr. Ajay Nair 05:52

So light and temperature and related humidity are some factors need to be considered when storing our crops, these crops for a longer amount of time.

 Olivia Hanlon 06:01

Okay, Ajay. So back to when we're looking at harvest here, what happens if we have produce

Okay, Ajay. So, back to when we're looking at harvest here, what happens if we have produce that isn't quite ripe, and when it comes time to harvest everything and take it out, maybe things like tomatoes and things like that, how do we help that process along?

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Dr. Ajay Nair 06:14

In the case of tomato, it's interesting that as long as the tomato has reached the breaker stage, which means where the blossom end becomes pink, or starts turning pink, you can harvest it and keep it on your countertop it will ripen. But if it did not reach the breaker stage, it will remain green. So in that case, maybe find ways to use green tomatoes and when that will be the way to do it. Some other crops such as onions, squashes, sweet potato, there is a stage called curing, we need to cure these crops before we store. For example, in the case of onions, about two to three weeks, we need to put them in a place which is dry, where there it is well ventilated, so that the proper curing can happen where the outer scales of the onion to become more papery. And that will be like a defense layer for the bulb against pathogen. So curing helps for longer storage. So curing has to happen for onions, curing happens for sweet potatoes, we do that on butternut squash. So keeping in mind that there is a step where a couple of days you need to expose them to a proper and appropriate temperature and relative humidity so that it's cured, and after that you move them to storage. So you asked the question about what happens to things which are not ready and a specific example was tomato, a breaker stage is a good way to look at it, whether you should harvest it and keep it but other crops you know, thinking about onions or carrots or winter squash, they can you know, especially in the case of winter squash, there's a reason we call them winter squash, you don't have to go and panic in harvest because the first frost is coming, these crops will take the frost so you don't have to worry about it. Same thing with crops such as cabbage and Brussels sprouts, carrots, they can take a small amount of frost so we don't have to worry about that. Sweet potato also will take maybe at least the first frost but then after that we need to make sure we get them out of the ground because the ground will get cold. So just because the frost is coming we don't need to run and panic and harvest, but once you have the first frost it's an indicator that the season is coming to an end and we better go out there and harvest the proper amount of time and bring these produce inside for storage.

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Olivia Hanlon 08:19


For sure, so along those lines Ajay, are there any of the crops that are in right now that we should worry about frost for?

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Dr. Ajay Nair 08:26

I would say sweet potato is the one that comes into my mind. It will definitely take a light frost, but after that if we leave it out more in the cold, the soil will become cold and it creates storage problems of sweet potato. Crops such as tomatoes absolutely it cannot take a frost. The first time it hits below 32 your tomato is done. Same thing with peppers, your peppers are done, eggplants are done. These are the warm season vegetables, your cucurbits, if you have regular squashes they're done. But the winter squash, even if frost comes the fruits are already there, nothing will happen for the first, but you don't want to expose them out in the cold for a longer amount of time because the more you keep them outside it's not only cold, you expose them to


more insects that are finding food because many of the crops are done. So whatever is out there, they go on to it. And also, you know issues with rain and rotting, you know being out there so that also needs to be taken into consideration.

 Olivia Hanlon 09:21

That makes a lot of sense, Ajay. So I have one last question for you today Ajay, and it's kind of more of a personal one. What is your favorite thing to do with your fall produce?

 Dr. Ajay Nair 09:30


Well I love to grill and sweet potatoes is another crop, which I absolutely love. You know basically I just, once I've cured them, I can store them for an extended amount of time. You know, we try to maintain anywhere from 40-50 degree Fahrenheit it is stored longer. You know it's easy to store at home also if you put it in a cellar. You know, you have those conditions that 50-55 degree. I just simply you know peel them and cut them into wedges, put some chili flakes and salt and other spice mixes, put some olive oil and then just bake them for about 50 minutes to an hour. And that's one of the best dinner dishes to make it so quickly you can put it in your burger, you can eat it with rice, you can eat it just like that. But sweet potato and the same thing with you know, carrots I do have carrots. With squashes, winter squash, I like to do that and making soup. So it's pretty hard to choose just one, but I say maybe I'll stick with sweet potato.

 Olivia Hanlon 10:31

All right, thank you for sharing that with us Ajay. So if people are looking for more information about fall storage of their crops, where should they go to look for that? Or who should they reach out to?

 Dr. Ajay Nair 10:42


Sure. One of the best resources that is out there is by USDA United States Department of Agriculture, and it is a handbook called Handbook Number 66. So listeners, they can just go online and just Google or search into any search engine. They can put USDA Handbook Number 66. It's a very comprehensive handbook. It's a PDF, it's downloadable, free to download which provides information on storage temperature, relative humidity, some of the storage pathogens that can enter, but it's all about storing fruits and vegetables.

 Olivia Hanlon 11:18


Okay, very good. Is there anything we didn't cover today that you'd like to add Ajay?

 Dr. Ajay Nair 11:23


I think we covered many of the crops and just reading more about the process of curing and why it is important I think that will be helpful because for example in winter squash, we do cure butternut and buttercup but we don't suggest curing acorn squash because it leads to poor storability later on so reading a bit about curing and why it is done. And then proper ways of storing especially temperature and trying to you know it is sometimes very difficult to go by Handwork Number 66 and have the same temperature and relative humidity in our homes. But you know if you can get close to it, I think that's a good deal. I mean, better than not doing anything so enjoy the fall crops I know we could store them for a long time and use them and eat them, highly nutritious and you know we are all happy that the season is wrapping up but at the same time happy that people still eat a lot of vegetables that are coming up.

 Olivia Hanlon 12:16

Awesome. Well thank you very much for joining me today Ajay, and we look forward to having you back in the future.

 Dr. Ajay Nair 12:22

Thank you Olivia. It's always a pleasure to be with you.

 Speaker 3 12:25

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