I’m Chal Landgren, Extension Forester with the Oregon State University Extension Service. And I’ll be your host on a series of videotapes on Shearing and Culturing Christmas Trees. In this series, we’ll be running through the yearly chores of the culturing and shearing of Christmas trees. The methods that we’re going to be talking about throughout this series are not meant to be the one and only way of doing something. In fact, in many cases we’ll be offering two or three solutions to a particular problem that you may face on your Christmas tree farm. I think it’s also important for you to become partly detective, in looking back and seeing how your trees responded to a particular treatment that you might have tried on your tree farm. Even growers with thirty-plus years of experience in growing noble fir are often challenged by the way this species responds to various treatments, and are always learning new things. Barney Douglas is a local tree grower,
Christmas tree consultant, and probably the most widely published author on Christmas tree growing and culturing in the country.

New Speaker: Some people call the noble fir the Cadillac of Christmas trees because of its good keeping qualities and very attractive appearance. It might also be called the primadonna of Christmas trees because it is a very temperamental and difficult to culture species.

I’m going to show you some of the tricks of the trade on how to culture noble firs and develop a high percentage of number one quality. I’m going to identify the different parts of a Christmas tree. These names will be important as we describe various cultural practices.

I’ll start at the top of the tree and go down. At the very top of the leader, we have a group of buds here that makes the future growth of the tree. Those are called the terminal buds on the leader. This portion from the top whorl to the terminal buds is called the leader.
There are no branches on the leader, just buds.
This is the top whorl.
On a noble fir we very seldom ever cut back the top whorl.
This is called the internodal span between two whorls.
This is the top whorl and this is the second whorl.
And the smaller branches in the internodal span are called internodal branches.
This is the third whorl and this is a three-whorl tree.
Now looking down below we have the handle, the part that goes in the Christmas tree stand.
And the branches are removed from that, of course.
There isn’t a great deal that has to be done in a one-year-old plantation.
One of the things that needs to be done, however, is to remove multiple leaders and save just the best one on the basis of the strongest and most upright one.
I’m going to cut off the unwanted leader and leave the best one to make the future tree.
Another thing that needs to be done is to keep grass and weeds controlled.
And if there is a mortality, replace the dead tree with a new seedling.
I’m going to describe basal pruning. Basal pruning means removing the branches and sprouts at the lower part of the tree to form a handle. Also, it inhibits the future growth of the leader to prevent excessive growth. Studies have been made that if you basal prune, the following two years will have a reduced leader growth of about 40 percent. It’s very important to remove all of the branches below the bottom whorl. Also, it’s important to pick a bottom whorl that’s at least ten inches above the ground to form an adequate handle and stump length and have at least four branches that are evenly spaced on the stem. As to the time to do it, it can be done any time of the year. But, on any one tree, a person wants to make sure that they have two whorls, two good whorls, and at least one foot of leader growth. That means that you don’t do all the work at one time in a field, you do a tree when it’s ready. A slow tree will have to wait a year, maybe. I’m going to remove the branches now below that good whorl.
The most common tool for this is
the hand-pruners that I’m using now.
You need a good sharp tool for this job to make clean
cuts and you can hone that blade every half-a-day or so.
There we have a nice clean handle on it.
It’s about, actually about 11 inches above the ground.
There should be at least eleven.
There’s one other thing to do to this tree.
Notice this one lower whorl branch is
shorter than the others.
I’m going to just tip off the buds on these
fast growers so it’ll even up the growth a little bit.
Now it’s all ready for the next growing season.
This noble fir has a multiple leader.
A basic rule is that a tree has to have
a single leader every year;
and if you have two of them, you remove the poorest one.
The time to do this job is normally
right along with the shearing operation.
I’m going to cut off this poorest one, discard it,
and this leaves the best one to absorb
tall the energy for future growth.
The first decision that a noble fir grower
should make when walking up to the tree is
how long to leave the leader; if it’s too long,
how much to shorten it. There’s a good rule of thumb on
that subject and it’s this:
if your tree is under 5 feet tall, you can leave the leader
12-18 inches long and the upper range is perfectly safe,
provided the leader is well-budded.
For trees above 5 feet tall,
there’s a different rule of thumb.
One wants to keep the distance between whorls
approximately 12 inches a year.
The purpose of shortening a taller tree is to improve
the density and to prevent an excessive span
between the top whorl and the second whorl down,
which is often called the gooseneck.
In this case, we have two possible leaders.
These were formed by cutting off the leader last year,
leaving this as the false whorl.
Notice that this one is crooked and this one is straight.
For that reason I’m going to pick this
for the leader and cut off the unwanted crooked one.
I’m also going to tie the leader against the stub
so that it is perfectly upright.
Notice that all of the false whorl branches are
about equal length except one, which is excessively long. I’m going to cut that off to restore the proportion. Remember we want to make a cone-shaped prong. The last step is to go around the tree and lightly shear any branches that project beyond the cone shape. We don’t have very much heavy work to do. The tree is all ready for next growing season. Another important decision for noble fir growers, is whether or not to shorten the top whorl. There’s a good rule on this. If the top whorl does not project beyond the natural cone shape of the tree, do not cut it back. The reason for that is that the terminal bud on the top whorl branch contains a bud set that will form an attractive noble fan like this next year. This improves the beauty and density of the Christmas tree. There are two methods of side shearing. One way is to take your finger and break off the tip of the branch at the proper length, like this. The other, and more common method, is to shear it with a shearing knife, cutting just the tips of the branches that project beyond the natural cone shape. Notice that I am not cutting the noble fan,
I am just cutting the tips of the longest branches.

Now the tree is nice cone shaped and ready for next growing season. This also prevents over-width. It keeps the tree sufficiently narrow to be about a two-thirds taper, which is ideal for the market.

One of the most important culture jobs after the fourth or fifth growing season is shortening excessively long leaders to proper length.

By holding my knife up here, I see that this leader is about 22 inches long, which is excessive. In order to shorten this leader, I select a group of buds on the leader. Then I find a lone bud right above that cluster. This job must be done during the late succulent season about mid-July on to maybe the tenth of August.

I’m going to make the cut above the lone bud about two inches to leave a stub. Another method of shortening the leader is to make the cut directly above the top bud, like this. The advantage of doing this is to get a more erect growth than by leaving the stub. The Oregon State University Extension Service made a study and determined that
by cutting close to the bud you get a more erect leader. Of course on this method you don’t get the stub to tie it up to if it’s crooked.

I suggest that a grower try both methods and use the one that works best for him or her.

Two kinds of buds are found on a leader. One kind is a large bud with the needles on it. The other kind, called a bubble bud, is a small, smooth bud. If a person has a choice, it is better to use the bubble bud to form a new leader.

This is a successful false whorl that’s formed from a bud cluster on last year’s leader. This marks the point where the lone bud on last year’s leader elongated and formed a new leader.

You can see that this was originally too long so it, in return, was shortened again to form this false whorl for next year’s growth.

Another common problem on a noble fir is a leader that doesn’t grow upright. This one leans toward me. This is caused when we shortened the leader last year and the top bud that formed the new leader didn’t spontaneously grow upright, which it does most of the time but not all of the time.
In this event, we’re going to use a strip of plastic ribbon to tie it upright to the stub, which was left for that purpose.

There it’s tied snugly against the stub and now we have a nice, upright leader.

There’s another method of straightening a leader, too, in case we do not have a stub here.

I’m going to pretend this stub never existed by cutting it off.

The Oregon Extension Service made a study showing that if you make the cut exactly above the bud without leaving a stub, it has a tendency to grow upright more easy than by leaving a stub. Even in that case, sometimes there’s a lean to the leader, and then we have to use a splice to straighten it up.

I’m going to tie a splice on this tree to show you how that system works.

First I tie the bottom of the stake.

And then I get a piece of ribbon and tie it in the middle portion right snugly against the stake.

And then the last one will be right on the top.

If we don’t do that,
the leader has a tendency to bend outward from the stake. 
There, it’s nice and straight.
We don’t want to take this off for about six weeks because it takes that long for it to become set in that position. Remember that, leave it on at least six weeks after you make the tie.
One thing more that needs to be done with this tree to improve its symmetry and narrow it’s taper so it won’t be an overly wide tree.
That is to cut back the tips of those projecting top whorl branches.
You don’t cut heavy, just the very tips. If you cut heavy, it has a stubby appearance and part of the beauty of the noble is the natural symmetry of the tree.
Another method of controlling excessive leaders is leader scarring. This is done when you suspect that next year’s leader is going to grow excessively long.
That is, longer that about 18 inches long.
The bark was skinned off just above the top whorl. I’m going to skin the base of the leader like this on both sides, leaving a thin, light line of bark on both sides of the cut.
Here’s a noble fir with an aborted leader bud.
It didn’t make a leader last year but it made a top whorl. What I’m going to do is force a new leader bud right out of the center here by cutting back half of the length of the entire top whorl. Now the tree is really too wide because the leader is gone and in order to restore good proportion, I’m going to shear back the sides to a cone shape. Now the tree is all ready for the growing season and it’ll resume a normal width. This shows the result of cutting back the top whorl to form a new leader bud. Sometimes only a single bud will form and sometimes there will be three or four like in this example. The thing to do is to select the very best one which is this tallest one here and then cut back all of the others to put all of the energy into the one we saved. Here’s another method of restoring a lost leader. Instead of the ways we described before, I’m going to get two opposite branches and bend them together. I’m making sure that the tips of those branches have five buds like a real leader. We tie them together at the base.
It’s very important that when we tie them together at the base that we tie them together at the top, but we want to make sure that there’s five buds on at least one of these branches we turn up so that it will make a good complete whorl next year. If we only had three or four we’d cut the entire thing off and force a new bud to come up the center like we demonstrated before. Also, we want to cut the rest of the branches back to about two-thirds the length of the leader. After about six weeks it’s safe to come back and cut off the flagging and the unwanted of the two leaders.

Now we’re going to talk about lammas growth and what to do about it. Lammas growth is summer regrowth that occurs usually following a rainy period. As long as that regrowth comes out evenly on the top bud like that, forming a bud shape, it’s perfectly alright to leave it alone. In fact, it will add to the beauty of the tree. I’m just going to walk away from this tree and let it grow some more. Here’s another example of lammas growth that does need some corrective action.
The reason it needs correction is that the terminal buds that formed lammas growth didn’t come out evenly. We have four buds that are much longer than the other buds, which are still closed.

And the way to correct that is to cut the elongated lammas growth just above a bud.

There, it’s all ready now for the growing season.

Here’s a tree with some obvious problems. It’s five to six this year and we’d like to get it set up to make a six to seven harvestable tree next year.

The first thing I notice is that the tree doesn’t have a straight top.

This tree lacks a straight top, but it has a handy stub to tie this one straight to.

I’m going to tie it in erect position with this plastic tape and this takes care of the leader.

Here’s a sucker limb that needs to be trimmed back to out-pointing branches.

Another thing I see wrong with the tree is it has a big, ugly in-pointer right here.

That’s a branch that points toward the center of the stem.

I’m going to remove that entirely.

Now the tree is ready for shearing.
Here’s a premium quality noble fir ready to go to market this year.

In order to bring out the very best of it, we’d want to do some leader pruning to make good proportions; we’ll cut it off right here.

And lightly side-shear it to make it cone-shaped.

I’m going to work around the tree just tipping off the longest branches until it’s perfectly symmetric.

A lot of people over-shear a noble fir.

Actually it should be sheared very lightly.

Now it’s all ready for the market.

Here’s a tree that we’d like to market this year. But, it has enough obvious defects on it that it wouldn’t be marketable without doing some culture work on it.

We’re going to do several things we’ve already talked about to make this tree a number one tree.

First of all, let’s consider the leader.

The tree lacks a leader, so we’ll have to tie one of these top branches firmly against the stub to reconstitute a new leader.

There are two possibilities here.

There’s a crooked one that’s long and I don’t like the looks of that.

But right below it is a nice straight one.
I’m going to cut off the crooked one, and tie the good branch tightly against the stub here in an upright position.

I’m going to proportion the rest of the whorl branches on the top.

Another defect that strikes me is this branch is long and ungainly.

So, let’s cut that back.

Now we’re ready to shear the tree to make a perfect cone-shape.

One good thing about the final shearing before market is you don’t have to worry about the buds because there’s no more growing time.

We just want to make the tree look good.

Some people call this a cosmetic shearing because we’re strictly working on appearance for the market.

That’s it, looks pretty good.

Well, here’s an eight-year-old noble fir that we’d like to harvest this year.

But the problem is it has a bent leader on top, it has a top-heavy limb structure, and it’s a little bit lopsided.

I’m going to go over some of the tricks of the trade to make this tree marketable as a number one tree this year.
The first thing I’m going to do is remove this bent top completely. Then I’ll tie up a new leader from a straight limb just below it. Now that leader looks a lot better the one we got rid of. And, I’m going to cut the tips of these limbs off so it makes a nice top. The next thing to do is to remove these tips from the heavy branches to get rid of that top-heavy look. There, that looks a lot better now. The last thing I’m going to do is to shear that tree to give it a cone shape. During the year of harvest, we don’t have to worry about bud possession because the tree has no more growing years. It’s just a matter of doing a cosmetic job that makes it look good. That’s it, it looks a whole lot better now and I think it’ll go to market this year. NEW SPEAKER: Douglas fir is a major Christmas tree species in the United States today. Increased competition means that the high quality production of trees is critical. And getting that high quality depends
on skillful and timely shearing. In this segment, we’re going to be looking at the yearly cultural activities involved with shearing Douglas Fir. We’re also going to be suggesting some ideas to help growers avoid some of the common mistakes.

In this segment we’re going to be using knife shearing. But, whether you’re going to be using knife shearing or mechanical shearing devices, the important principles and points are still the same.

John Tillman is a tree grower, retailer, a shearing contractor for many years, and a consultant regarding Christmas tree production.

New Speaker: Base pruning is removing the bottom branches from the tree so that the tree has an adequate handle to fit into the tree stand.

It is important to do this before we begin the initial shearing. Generally the tree will be base pruned about the same year that you start your initial shearing. You never want to remove over a third of the tree’s growth or we may stunt the tree dramatically. We begin by cutting off some of the major branches at the very bottom of the tree.

I always try to cut these branches as flesh as possible to not leave any nubs.
I use the flat side of the clippers
in comparison to the side with the bulge on it.
I want the handle to go up at least the height
of the clippers plus two inches.
We’re allowing the two inches for the stump
of the tree when it is cut for harvest.
This is the height of the clippers plus two inches.
This would be an adequate handle.
Another purpose this serves is that it leaves only material
that will be sent to market before we shear the tree.
We’ll try to clear the branches out of the way
so that we can see we’ve done a good job.
This is a field of Douglas fir Christmas trees.
These trees have been base pruned and have
never been side-sheared.
There are three reasons to initially side-shear a tree.
The tree is either too wide for its height,
too tall for its width,
or we want to start to begin to create density in the tree.
This particular tree would not need to be
side-sheared because it is not too wide for its height,
nor too tall for its width.
Thus it would be unnecessary to shear this particular tree.
One of the types of trees that we’ll find for our initial shearing is a tree that its base is too wide for its height. So, we’ll need to shear mainly toward the base of this tree. As we begin to shear the tree, I’ll be concentrating mainly on keeping the base of the tree suppressed slightly as to ensure that next year’s growth will be both uniform and proportional. As we notice after I shear the tree, now this top is too long in comparison to the width of the base. We will need to bud, or remove the terminal bud, as I call it. I find the bud that will be in proportion to the width of the tree and cut to it. Right next door we find another tree that’s base is too wide in comparison to its height. The difference being that this top is not too long in comparison to the base. We’ll want to leave this top unbudded which will mean that we’ll leave the terminal bud intact. Again the thing we’ll concentrate on is bringing the base of the tree in so the following year when this tree grows it will not be excessively wide.
By shearing toward the bottom of the tree, we’ll be suppressing the growth in that area and by leaving this unbudded, when the tree regrows, the base will not regrow as much as the top and the upper part of the tree so we’ll be moving the tree in this manner towards a more marketable taper. Another type of tree that we’ll find for initial shearing is one that’s too tall in comparison to its width. We’ll concentrate mainly on shearing the upper part of this tree, cutting the top, and not taking the base in very much. Thus, next year the taper of this tree will gain in the base and not very much in the top. The first thing that we’ll do is remove the defective branches. I will always remove the defective branches from their origin, cutting them flesh and removing any in-pointers that we may find coming off directly behind it. If we leave these suckers to grow, they will impede the growth of the branches coming out naturally behind them. Now, we’ll cut the leader.
To get it out of the way of my side-swing.
As I begin to shear this tree, I’ll be concentrating mainly on the upper parts of the tree and mainly in the crown.
By bringing the crown in and loosening up on the base, the bottom of the tree will become wider and thus have a more desirable taper to the tree next year.
By shortening up on the top and the crown area, we’ll suppress this area so that the base has the time to catch up.
I will find a single bud on the top of the tree and cut directly above it with the angle of the top cut away from the bud itself.
I do this so that I have a single top next year.
If I cut two or three buds together, I’ll get two or three tops, none of which are very desirable.
I try to make sure there are no buds within an inch of the bud that I cut at.
That way these should come out as laterals and this should come up as my leader.
Another reason for shearing a Christmas tree is just to begin to develop density in the tree.
As we can see with this particular tree, the base and the top are somewhat uniform but we’re faced with excessive growth.
We need to trim this growth back to begin to instigate the density that will be desirable toward a marketable tree. The first thing that I will do is to remove the defective branch, or multiple coming off the stock of the tree. I remove these first, before I shear the tree, so that it will not affect how the tree is sheared. It needs to be removed so that it does not compete with the leader. And when I’m just trying to instigate taper, again I’m cutting everything uniformly and evenly around the tree itself, concentrating on keeping my base somewhat narrow as to not cause the tree to become excessively wide in its first year. I want all of the crown to be uniform and even and directly centered on the top. I cut the top in proportion. If I have two buds, I will pick off one of the buds so that I’m left with a single bud at least an inch above any of the remaining buds on the top. The top is always cut in proportion with the tree. I would like to talk a little bit about the shearing swing at this point.
The most common swing that I have found is most efficient for the proper taper is the side swing. It starts somewhere above the right side of my head, farthest point being toward the center, and comes down past my right leg.

One of the most common problems that I have found in working with people on a shearing swing is they’ll start across their left shoulder and come across in this manner, causing the tree to be excessively wide in the base and tight in the crown. So, I’ll go ahead and demonstrate the side swing at this point.

One of the things that I find that I do that is pretty common is that I’ll tilt my nose at the exact angle that I want the swing to be and the knife will follow in that angle. The knife will come down past my leg.

I also try to take small steps. Another common problem is people taking too big of steps. If you take a large step, you’ll leave real ratty bases and end up many times having to go around your tree two or three times in an effort to get the tree to be uniform and even. I’ll take whatever amount of swings it takes to get the tree properly.
Remember the most important keys to a good swing are starting above your right shoulder and ending up past your right leg, not to come across the tree in this manner because we’ll end up with excessively wide bases. The first thing I do when I approach the tree is identify my leader. This is important so that while I shear the tree I know what I’m shearing around. As we can see, this particular tree has three different tops; this was caused by cutting in a group of three buds the previous year. We can help eliminate this by singling out isolated buds each and every time we cut the particular top. I need to choose one of these tops and what will dictate which one I choose is the bud structure on the individual leaders themselves. Any gaps in buds will be a gap in branches next year. I also want the top that’s closest to the very center of the tree. As I can see, this top here, this leader, has the best bud structure on it because it has buds that go all the way down to the base of it. I will remove the other two tops by cutting them flesh.
Now I have identified my leader.
The second thing that I’ll do on this tree is remove the defective branches.
These two branches here are called in-pointers because they do not come straight off the stock itself.
We’ll cut those flesh at the point of origin and remove those before we shear the tree.
Anymore of those that I see while I’m shearing, I’ll remove at the same time.
I will begin to shear my tree and make an assessment of is the tree marketable at this point.
If I know that I’m trying to sell a four- or five-foot Douglas, then I’ll need to do some things slightly different.
But I know that this tree is not going to sell this year. I want to keep my base in slightly, about a 50 percent taper, which means that the base is about 50 percent of the height of the tree; the width of the base being 50 percent of the height of the tree. This way, in the year of harvest, I’ll be able to bring the tree out to about a 60 percent taper.
I want to cut my top in proportion, with everything on this tree leading to the top.
I cut at a single bud so that we can help eliminate the amount of multiples that we create each year. We cut the top at the angle so that the pitch will flow away from the bud that I have isolated. It also helps to seal the top. If I cut it flat, there are times when you can get rot down through the leader and kill off buds below it. By lowering the top, we will create density in the tree where needed. I always polish the tree after I’m done shearing, which means that any branches that are a little bit out of line get cut off. One of the philosophies that I have on creating a number one Christmas tree is to create the core of the tree first at a four- to five-foot stage. What I mean by the core is that we have a dense tree at this stage. Thus, ensuring that we’ll have a marketable tree in the next two years. One of the biggest mistakes that I see many growers make is that by leaving long leaders, and not shearing properly in the early years, you create a six- to seven-foot tree and then
start to shear it back creating density.

I believe the tree should be worked
from the inside out by creating the proper thing
at a small size and working outwards with it,
then to create the size and then try to fill it in.

Here we have a harvest-size tree.

This tree has numerous problems.
The first problem that I see is the most apparent.
The width of the tree is far too wide in comparison
to its height, or its percent of taper.
The percent of taper on this tree
is in excess of 90 percent.
The second problem that I see is that the tree
did not create a distinct center leader, or top.
The third problem was created by improper
shearing techniques the previous year.
The sides were sheared somewhat straight,
but the top was domed,
which created this big shoulder effect to it.

It's important that I assess the problems that I see
on the tree in order to correct them.
The tree is not sellable at this point,
so what I do to the tree will hopefully
make a better tree next year so that the tree
will have a higher market value.
The first thing I want to do is to always identify my top. I can’t shear around the top uniformly if I don’t know what the top is. I always want the top to be as close to the center of the tree as possible. I double up my tape so that the top will not stretch and come out the side. As we can see, this top last year was not perfectly straight. I find a branch that’s closest to the center of the tree, and I’ll tie it up before I ever begin the shearing of the tree so that now I have something to shear around. I’ll remove this defective branch, which is a cross-pointer. Normally I wouldn’t want to leave anything that comes out above what I’m using for the top. But in this case I will leave this because removing this would create more of a problem than I’m eliminating. We need to gain as much growth in this area as possible in order to compensate for this shoulder. How I will correct some of these problems and make the adjustments on this tree is to bring my base
in because in the last growing season we gained in width but we didn’t gain in height.

So, we want to bring the base in.

I want to try to eliminate the shoulder as much as practical. It’s not as much as possible, but practical by tightening up in this area of the tree and allowing the growth up here to grow freely by not shearing too tightly or creating another shoulder.

We also want to leave the top a little bit longer so that we can gain some height to compensate for the excess taper.

As I begin to shear the tree, again I will be concentrating on making the proper adjustments so that it will be a better tree the following year.

I’ve determined that the tree will not be sellable this year.

What I’m trying to do is keep the base in so that I can change the percent of taper let’s say from an excess of 90 percent to maybe 70 percent. Although, that’s not ideally where you want to end up, it will make the tree at least slightly higher value.

I do that by suppressing the base.

When I say suppressing the base, I mean that I’m bringing the base in slightly tighter.
I want to try to remove the shoulder of this tree by bringing the crown in slightly.
Again, the corrections that I’ve made on this tree to increase its marketing value the following year, are to suppress the base and allow some growth in the top area.
I left the top uncut so that this terminal bud will be able to gain the height that I need to compensate for its wide base already.
I’ve left the sides of the tree as straight as possible. I will have one hole over here; there are not enough branches to fill in this hole. There are buds on the backside of the top that I have created, which may help fill that in. What I’ve tried to do with this tree is to eliminate some of the problems that we had when we first addressed it. If I sheared it the same way I found it, I would just have a bad tree next year that was a little bit bigger.
I’m always trying to adjust the trees so that it will be a better tree once I’ve sheared it. By suppressing the base and allowing in the top, our tree will actually move and become more desirable.
Straight sides, uniform crown, single erect top, and medium density throughout the tree are some of the characteristics that you’ll find common in number one trees. This tree may never be a number one, but at least it will be better than when we first got to it. As I look at this tree, the first thing that I notice is it has a good straight leader located in the center of the tree. The taper of the tree is that the base is slightly narrow than we’d like for its height. It does have good characteristics that I like for a tree this size. We’ve begun to create the density that we’ll be looking for. I believe on working a tree from inside out, which means that we create density and then gain the height that would make it harvestable, rather than to create the height that we’re looking for and then try to fill it in. Creating a tree at this size that’s in this condition will ensure us of a higher percentage of trees that will be marketable at an earlier age.
It will also appeal to more buyers than a field of trees, consequently, that was grown maybe differently that didn’t look this good at this size.

The very first thing that I do is always identify my top and remove anything else around it.

I have a multiple top here that I’m going to take out.

After I remove the multiple, I’ll begin to shear my tree.

What I’m looking for at this point is to begin to widen the tree up. To widen the tree up, I’m going to be not cutting as much towards the bottom of the tree and bringing my top and crown in slightly.

This tree may be harvestable this following year.

Identify a top bud and cut to it.

Everything on this tree should be left in proportion so that it flows to the leader.

The crown should be uniform.

I didn’t leave the leader in excess length so I should not create a gap there.

At this point I also will be looking for defective branches, known as in-pointers.

As we can see on this one, we have one coming through.

The problem with these is that after they get on the tree lot if these branches are shaken out,
it causes problems at a retail level.

So we want to remove these.

I like to get all the apparent in-pointers each year; it’s the best way that I can have the least number of these left in a tree.

The characteristics I’m looking for in leaving this tree at this point is I’m looking for about a 50 percent taper, the sides should be uniform and symmetrical, the crown should be uniform, leading to a straight, single top.

This is a common problem we find: multiple tops.

What I’ll be looking for in deciding which of these tops to leave, will be something that comes directly from the center of the tree, something that is good and straight, and that has good bud structure on it.

Sometimes I find this by removing things that I know will not make a good leader, such as some of the multiples. As I can see, this is the one that I’ve made my decision to leave.

By removing the tops that we know we won’t want to leave in the tree, leaves us with the top that we know we will leave.
This is close to the center, it is straight, and it has a good bud structure on it.

On this individual tree, most of the time we would want to remove something that is coming up to this effect.

But as we can see, if I do, I’m going to create a big hole because there are no branches coming out behind it.

What dictates to me whether I cut something out or not most of the time is what I find directly behind it.

If I had branches coming out here that would provide cover, I would remove this multiple.

But, because there is nothing behind it, I would create more of a problem than I’m eliminating so I will try to bend these down slightly and shear around the top.

After I’ve selected my leader, I’ll be shearing around the top.

It’s very important that I select the top before I shear the tree so that the top can be left directly in the center and everything can be cut towards it. If I pick an improper top, the tree will not grow the following year in a manner that will increase its value. By selecting the proper leader, and leaving these branches below it,
I have a top that’s now centered in the tree, is cut in proportion, and will act as a good leader for next year’s growth. By using the techniques that we’ve discussed here today, such as not leaving excessively long leaders, wide bases, and trying to create the density of the tree about the time the tree is five feet tall, we can assure a higher percentage of number one trees because we’re not creating problems and then trying to eliminate them. At this point we would like to discuss some of the equipment we use for shearing, how we sharpen this equipment, and how we use this equipment safely. The first knife we have here is a Harveco, with an 18-inch blade and a 16-inch handle. This is the knife that I personally use because it allows me to go from top to bottom on most trees, allows me to get straight sides, and is very efficient. I do shear almost year-round, so it is a knife, because of the weight of the handle, that I would recommend for someone who shears quite often. The next knife that we have here is a ten-inch handle with a 16-inch blade. The ten inch handle is something that
I would recommend for someone who just shears seasonally because the weight of the handle will not give you as much injury to possibly your wrist or elbows or such.
The problem with the shorter knives is that at times you can get two different angles to a tree because you’re not making on consistent swing from top to bottom. As long as you’re aware of that, this knife may work real well for you.
We also have the six-inch handle knives with the sixteen-inch handle blade. These are very light and you could possibly be very prone to a choppy effect on your tree after shearing. The next knife that we have here also has a six-inch handle and a sixteen-inch blade. The blade is made of stainless steel. The steel is a little bit harder to sharpen but once we get it sharp, it will stay a little sharper than the high carbon-type steels.
Another small knife has a six-inch handle and a fourteen-inch blade and is a Hinkle knife. This knife only comes available with a six-inch handle and was very popular at one point.
They’re a little harder to get these days and they’re very expensive, but they seem to work real well. Remember with the smaller knives you’re going to have a little harder time keeping uniform straight sides.

How we sharpen these knives is that at first we use a file. I always use a good file because an old file or one that’s very pitched up will run across the blade of the knife and you can have a chance of injuring your hand at this point. We try to use a good file.

It’s called an eight-inch Mill-bastard file. This will take the initial edge off the knife.

The second thing that I will use is a wet stone, which refines the edge of the knife. After I use the stone, I use the steel, which will take the wire edge that’s left after using the file and the stone; this takes the wire edge off. This will give me, hopefully, a sharp knife, which will enable me to shear quality trees. Another tool that’s very important in shearing Christmas trees is a good set of clippers. These are the Falco-two’s. They are very commonly used in Christmas trees.
They have the flat side, which is very effective for base pruning and removing things fleshly. They have a pitch pocket, so that the clippers will not gum-up very easily. Again, the most commonly used clippers. I find them very functional. I always carry my clippers in a holster, which makes them very available and safely carried. Another, very important, piece of shearing equipment is the leg guard. These are the types of leg guards I prefer. I prefer green ones over red ones because the red ones seem to attract bees if you do hit a bee’s nest. Leg guards are worn over both legs; they have straps that fit securely around your leg at three points. You should wear them on a belt and squarely over both legs. These will protect your legs and allow you to make proper swings because with a proper swing, the knife will be going very close to your leg. Another important tool is a good pair of boots. This is a set of steel-toed leather boots. The steel toes will protect your toes from any cuts that may happen with the knife swinging by your foot. We want to be as safe as possible by wearing good footwear.
If you’re wearing rubber boots, 
it’s also very important that the boots have double-thick rubber along the toe and not just the single layer. 
Another tool that we’ll use is a Tapner. This is used for tying leaders and tying up tops in trees. You can see it ties things together. The problem I find with this is that it’s not adjustable; you can’t bring things in tighter as needed or loosen them up. Some people have found this to be very effective. Another tool that we’ll use is a small saw for base pruning. It helps in removing large branches from true fir, or Douglas fir, that may be too large to get through with clippers. This allows us to cut the branches off flesh, thus still creating a good quality handle on the bottom of a tree. This is a tool that we use for dispensing flagging tape. The tape is pulled off and pulled abruptly. We’ll cut at the length that will be needed for tying the leaders. Some people have found this to be very effective also.
In order to properly and safely shear a Christmas tree, we need a very sharp knife.

The first thing that we’ll try is to find out if the knife is sharp.

We can see this particular knife tends to break branches and hangs up on many of the branches so it’s not very sharp.

The first thing that we need to do in order to sharpen the knife is remove the pitch.

The way we remove the pitch is by using a knife that’s not presently in use for shearing; putting the knife that we want to sharpen in between the other knife and our leg guard and just pulling it directly away.

This removes the pitch from the knife that we care to shear with.

The next thing that we’ll do is grab our file and begin concentrating on putting a nice, even edge all the way down the knife that we need to sharpen.

Once I have sharpened one side of the knife, I try to keep this edge uniform in the amount of material that I’m removing down the length of the knife, I’ll turn it over and begin to sharpen the back side.
What’s very important is that I only remove the same amount on this side that I did the other side, which will ensure that I have the blade centered, the edge centered on the knife.
If I take more material off one side than the other, my blade will be off-center and the chances of getting the blade very sharp will be very slim.
Whichever direction is the last direction that I file will have a wire edge, which will actually be going around the blade.
So I want to very lightly use the file to try to center this up.
I can feel the wire edge by placing the knife squarely over my finger and rubbing my finger up the side of the blade and my thumb up the other side. You’ll be able to feel whichever way the blade may be laid over. As long as the edges are even, I’m now ready to use the steel.
I take the knife and run it directly along the steel, pointing away from my body.
The important thing about steeling the knife is that the angles used on the steel will be the same from top to bottom.
We’re not going to be real abrupt on one side and flat on another. We want the knife to go from the bottom of the blade to the very tip. The tip of the knife is usually the most important part to get sharp and it seems to be the hardest. Once I have my knife sharp, the steel will be the only tool that I’ll use on it, unless we begin to have troubles with it hanging up or breaking branches. The steel is actually just a very very light file. Once I’ve steeled the knife, again I want to check for a rolled edge. Sometimes you may have a rolled edge just right at the tip such as we do here. I’ll just want to take a little bit of that off so we can bring that blade back into center. I steel it and it’s feeling pretty good to me now. As we can see, the knife will now cut in a nice, clean cut, which will ensure that we can shear our trees properly and safely. We’d like to talk a little bit about how most injuries occur.

y experience has shown that most injuries
occur while sharpening a knife.
I usually like to dictate that one person is responsible for sharpening the knives and that that person knows the proper sharpening techniques that I have found to be very safe. In my experience, the second most common injury will be caused by someone using improper shearing swing: something that is manufactured that starts from below and comes up, comes across, comes in any manner other than directly at you.
The shearing equipment that I use (the steel-toed boots and my leg chaps), are set up to protect me from the knife coming towards me. The proper shearing swing should start above your shoulder and then past your leg.
Some of the things that we always do is we never work in rows directly next to each other.
We have a down row and a return row.
We try to be very conscientious about where other people are. When we hit bee’s nests, the first thing we do is drop the knife. I find it very necessary to generally run quickly, not very slowly. By dropping the knife,
it eliminates the chance of swinging at the bees.

We don’t play radios in the Christmas tree field because the easiest way for me to detect that there are bees in the tree next to me or the one that I’m working on is for me to hear them. There are three ways to find out you hit bees. That’s to see them, hear them, or you feel them.

I have found that hearing them is the most effective way to not get stung.

Using these methods of properly worn shearing equipment, leg guards that are worn properly are not pulled up to a point that exposes this part of the leg. They are worn down below so that it goes directly from my steel toe to the leg guard. The leg guards are worn squarely over my legs.

A lot of times I see people with leg guards that creep in on them so that while they are shearing, the knee becomes exposed.

I want the leg guard to be worn squarely over both legs. If I don’t have a leg guard on my left leg, then the chances of me hitting a piece of dead wood in the bottom of the tree and it coming across can sustain injury. These are some of the things that I found very important to practice safe shearing so
that you and the person working next to you do no sustain
an injury while properly shearing Christmas trees.
New Speaker: I hope this presentation has given you
some useful tips and suggestions to help you improve
the Christmas tree quality on your own tree farm.
There are additional sources of information available.
For example, the extension service
has publications on shearing and culturing Noble fir,
Grand fir and Douglas fir.
There are publications available on weed control in
your plantations and on disease and insect control.
Grower associations can also provide
some information and help. Associations such as the
Northwest Christmas Tree Grower’s Association,
the Puget Sound Grower’s Association, and the National
Christmas Tree Association are all quite helpful.
Your county extension office and consultants can
additionally provide some help and assistance
on your own plantation.
But probably the best source of information is your own
experience and experimentation on your own tree farm.
[END]