Course on Landscape Architecture and Site Planning-Basic Fundamentals
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Module No 08
Lecture 39: Planting Design (Contd.)

Good morning, we have discussed about various forms, we discussed about various criterion. What next?

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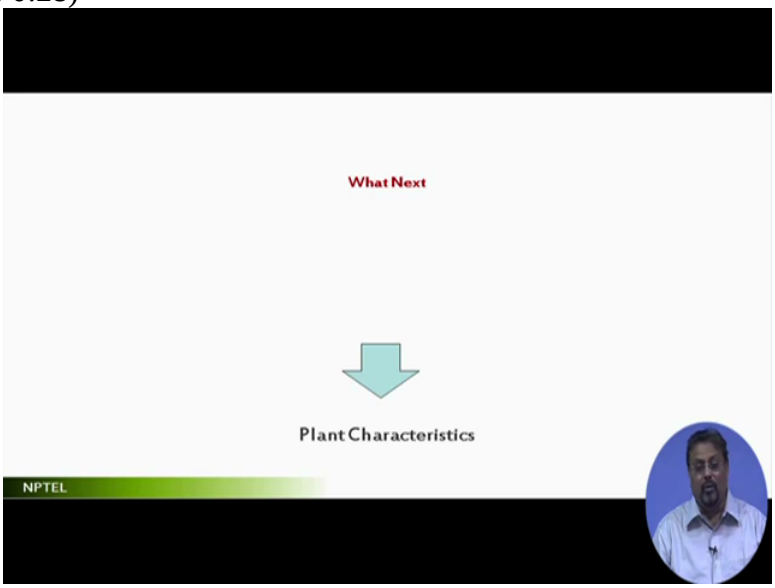

Next, we are going to discuss about the plant characteristics. Here, let me tell you, again I take the analogy of the medical sciences. Doctor knows your disease, Doctor knows what is to be done. Now it has to be supplemented with a recommended or prescribed medicine. Here it is all the more important that the Doctor knows about it in every medicine that is going to cure you. If they do not know much about it, then it will become a sort of you know wild shots by which they are trying.

Here, my objective is, I will be discussing about the plant characteristics. You will find that when I talk about the characteristics, many of the items I have already started discussing in the criterion because that automatically falls into place. But here, I will go a little sequentially.

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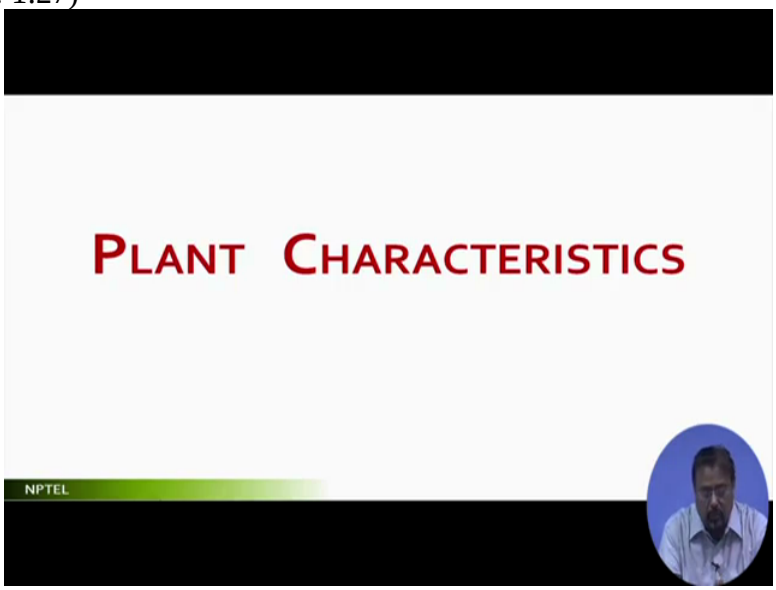

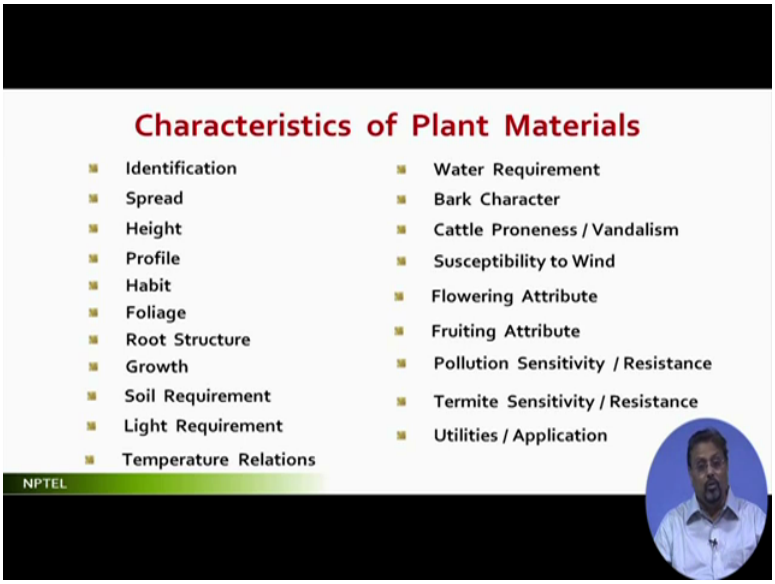

So the plant characteristics. What is that characteristics? What is the plant and how is the plant manifesting, that is what is the characteristics. Each plant will have its own intrinsic characteristics and also it will have some attributes which we want to explore and exploit in our landscape. That is why this study of the plant characteristics comes into play. So before we know about the attributes of the characteristics, we must now the ID or identity of that particular tree. So in that characteristics, I am giving a list here, you can see.

The 1st thing I need to know the identity or identification. Means, how do I know which tree I am discussing about? It is like that. So identity or identification is very important. Then comes spread. Now these are again identity is the 1st. Now the next other items which are coming, they do not come into a order of priority in my list but I will discuss. Then comes height.

Then profile, I will I will detail it out. Then habit, then foliage, then root structure, then growth, soil requirement, light requirement, temperature relations water requirement, bark character, cattle proneness or vandalism, susceptibility to the wind, flowering attributes, floating attributes, pollution sensitivity or resistance, termite sensitivity or resistance and utilities and application. Now if you look back to the earlier lecture that I have given, if you retrieve your whatever I have discussed, you will find that I have talked about these in some form or the other.

But essentially here I am focused, here I am trying to say that now whatever its criterion by which I will be selecting that but 1st of all I must know a plant well enough so that I can make good use of it. It is just like, the medical representative is trying to explain the positive effects and the side effects of a medicine to a Doctor. Doctor is not (())(3:51), the manufacturer of medicine comes to the doctor through the representative and an representative explains the entire characteristics or attributes of that particular medicine including the side-effects.

Similar is the situation where we are now. When you are trying to know about a plant, what all you need to know in terms of its characteristics and attributes? This is where I am now. I will be going to them individually, one by one. The 1st and the foremost is identity. Identity means which we are talking about and then how do we identify that free?

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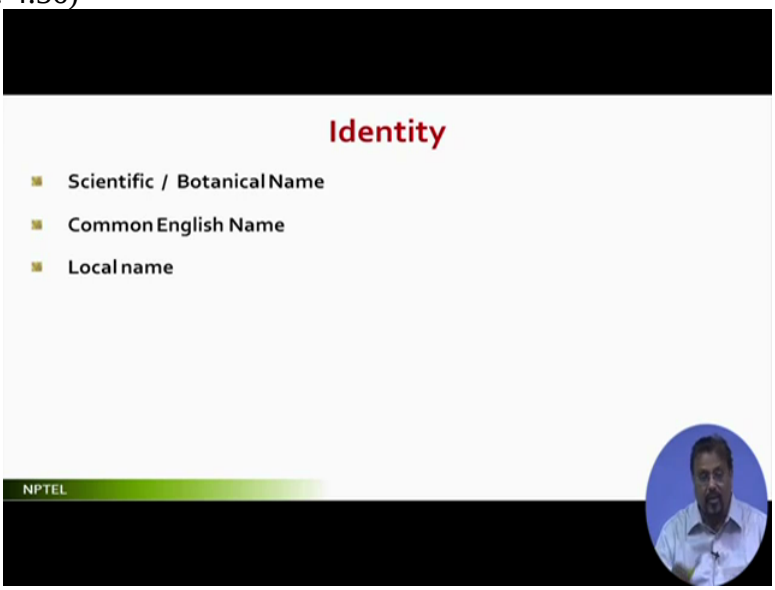

So this is identity of the plants. This will take a little longer discussion because here, there are many things which genuinely you are not aware. You know or tree, you know a name, you may be knowing some traits or characteristics of this. But how it is represented, it is important to know about it. So I will go a little detail of this okay? So the 1st and foremost identity of a tree is by its scientific or botanical name.

Whatever name you have been hearing about that particular tree for scientific and botanical name, technically you must know when you are prescribing because it may so happened that some of the trees will be called by different names in different locations and maybe, the same name used for different trees in different locations. So no risk taking in this. My 1st advice is, always follow the scientific name when you prescribe.

Along with that, you give the other names. So whenever identity is being said, there are 3 ways that identity is given. One is the scientific or botanical name, and the next is the common English name. Why the common English name? Because generally, since English is a common language all over the world and most often, most of the, many people are talking in this language, they try to see what is the name by which it can be best represented.

Other than that what we have? We have the local name. Local name is very very very risky to be for prescription purposes because local name is directed by local dialects. The same tree maybe

named differently in the same state in a different district, in a different region guided by the dialectical differences. So what happens? How will you use it? It is something like this.

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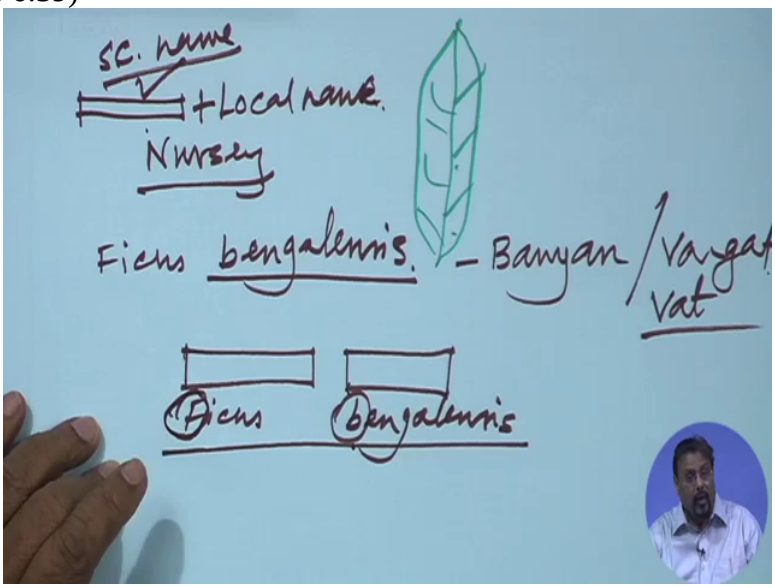

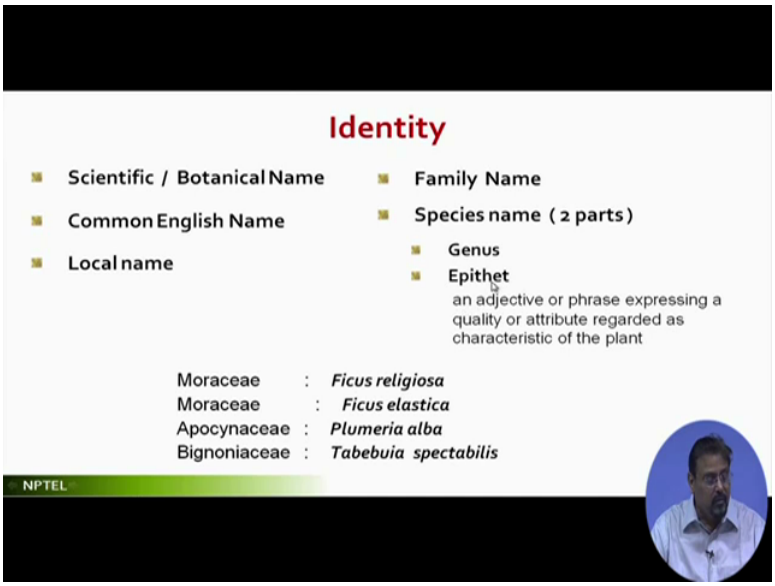

My advise would be, if suppose you are selecting a plant and you are prescribing it, you give it its scientific name, along with that you add a local name. You will find the people who are working in that locality, they are familiar with this but when the tree has to be really procured, it has to be procured from the nursery or horticulture section. And they know this tree, of course by local name but they always refer to this with respect to the scientific name.

So the scientific name or what an equal name is the 1st that you must know. And these names are a little complicated. You know, slightly high sounding names like you know chemical compositions and all. Common English name is for references. So if you don't give local name, still your project can be execute it. But if you don't give scientific name, I have you know scepticism whether your politics is going to be rightly executed, okay?

So it is better to be discussed about scientific and botanical names. Whenever these names are being given, you know, there are certain ways by which the nomenclatures are given. And there are universally same rules. What you do is, for any plant, you give a family name. See, very interestingly, it matches with our human nomenclatures, your personal names, it matches with that.

The personal name like, say you have a surname which is a family name. In some regions of the country, the surname is given 1st and your name is given next. In other parts, your name is given 1st and the surname is given next. And in some parts, there is your name, there is a middle name, additional and a surname. In some parts, you will find that there is a name, surname which corresponds to the location where one belongs to, then the father's name and then your name.

So these kind of things become complex whenever we're trying to see different names of different people in our country itself. For trees, it is something like, no you have to have a family. So a tree belongs to a family. That family may have multiple other such kind of genus okay? So the family name is one. Then the species name.

So every species is going to be under a family. And the species name will have 2 parts. One is called genus, another is called epithet. Genus is its Genora, the name which is derived from the family. And the epithet is its characteristics, some special characteristics, something you know. By some adjectives, it is expressed. I will give you one or 2 examples, you will understand. Very interesting.

And more you go deep into it, you will find it is very very exciting as well to know about the plants in such form. I will give you few examples to correlate. See, ficus religiosa is the species name. Okay? They belong to Moraceae family. So if I try to find out what is the ficus religiosa's

family name, it is Moraceae. Now Moraceae if it is, then ficus religiosa then you will find that there is another ficus, ficus elastica is also belonging to the same family name.

Sorry, just this one small spelling mistake. All right? Now ficus elastica. Let me compare between these 2. Ficus is a genura, a genus of that particular plants. They are common for both the plants. So if I see the species name, it has 2 parts usually. The 1st part and the 2nd part. Ficus is one part and the religios is another part. Ficus is another part and elastica is another part. They belong to the same family. You will find many such examples in the plant groups or the say plant identity. If I understand genus, okay ficus is a genus.

Then what is religios and elastica? If I tell you these 2 plants, you will automatically understand that where lies the difference. Now let's see. In terms of epithet, religiosa, does it sound like any other common English word called religion? Yes, it does. It does. Elastica, does it sound familiar to elastics elastic? Yes it does. Now if I tell you the local name of this, the ficus religiosa's local name is Peepal treat.

Peepal tree, see I am giving all those names which are mostly available in North India because I am not familiar with the South Indian dialectical name of all these fees. So it is difficult for me to say the right word. Though I have been hearing, so I found that in South India, different regions have different names for this. So I am not taking that risk. I am trying to say what is most commonly available in the northern Indian part and then I am giving example with respect to that.

So the ficus religiosa is Peepal tree. You know how it gets generated? The 2nd part, the 1st part is generating from the genera genus, 2nd part is representing some one of the characteristics or speciality of this particular tree. Religious is religion, connected with religion. And Peepal tree is the one which is a kind of fig tree which is worshipped and since it has a religious value, so whoever 1st scientist who identified this tree and ultimately brought this into the compendium of plant lists in which the person must have thought that if I add the religiosa as a 2nd part, as an adjective to it or maybe a representation of that (())(13:03) it holds best.

So the religiosa. Somebody would have, could have given a different name for religiosa but the ficus would not have changed. So similarly, look at the ficus elastica, here the plant, this is

rubber plant. Rubber plant which grows to a great height, great size and the leaf looks like you know, I can draw. It is like this. This kind. It looks like a rubber plate, rubber sheet.

And also if you hold it, the thickness and the quality is such, it looks like a rubber sheet, thick rubber sheet. So just, just to give a representation that this is a rubber kind of thing, elastic word came into the mind of the scientist and added elastic as a part of it. I did a name one more in this, I am just time to give that as a comparison. There is a plant, a tree called ficus bengalensis.

This is a religiosa, this is elastica, there is a tree called ficus bengalensis. Now if suppose it is ficus bengalensis, means they belong to the same family. And then what is the meaning of this bengalensis? You know interestingly, this, the scientist who found out this, 1st he identified this tree in a region called Bengal in India, eastern part of India. This tree originally, the researcher when he found out and ultimately researched on it and then added to the scientific names of the universe of the plants, then in that case it was regarded or respected as a place of origin. So bengalensis.

Ficus group, ficus genera, bengalensis. This is, common English name is Banyan tree, local Hindi name is Vargad and the local Bengali name is Vat. Now see, this Vargad and Vat has not been represented over here. It is the scientists wish that how he is going to explain or express this part of it. So then it brings us to one point. That means, the tree will have, any plant will have 2 parts. Most often, since it is a name, most often when you find that mention of this name in continuity of a sentence, then most often it is written in italics just to make it different.

It should not look like another English word. It is not an English word. It is a name. Okay? For which if suppose this has to be written, this will be written as ficus, then bengalensis in italics. Follow this rule, you will find that you get the idea of it, ficus bengalenses. And another thing is, unlike our names where the initial is capital and also the 1st letter of the surname is capital, unlike that, here the 1st letter is capital, the 2nd letter is not capital.

So whenever you find a name which is generally in the midst of a sentence with a italics like this, then you should think that probably it is the name of a tree okay? It may be a name of a medicine also. So ficus bengalenses, this is how the whole thing is represented. So what happens is whenever you are trying to see the identity of this tree, you must know about the family, you

must focus on to the genera or genus but very much focus onto this which will give you some clue of that tree.

Let us see. There may be one more example. See, Apocynaceae is the family name of a tree called Plumeria alba. Plumeria is a tree which is known as Pegoda tree. Plumeria has multiple varieties. One is Plumeria alba and there is Plumeria rubra. Plumeria is common. Then where lies the difference? Alba and the rubra.

Two different trees, looking like but there are lots of visible or distinguishable differences by which you know if you are, sure of it, you know if you are researching on this, you definitely can see, oh this is looking different. Okay? There may be certain things common. There may be certain things common. Then maybe the trunk structure is common, the habit is common, the leaf structure is common flower profile is also common but the flower colour is different.

Alba is the Latin word meaning whitish okay, Albous. Now this Plumeria alba has a flavour which is whitish with a yellow at the Centre spot. Plumeria rubra is a similar kind of flower, fragrance also may be similar but it is, ruber means read. So it is reddish colour. Okay? That makes a difference.

So whenever you are trying to see the plants, just do not simply blindly take these names. Try to know its identity with respect to its characteristics as well. There is another set of 3 which I am showing here, see Bignoniaceae is basically the family name of Tabebuia spectabillis. Tabebuia is a genus. Spectabillis means spectacular, very attractive, showing, showy type. It looks good okay?

Tabebuia if you see the tree, spectabillis one, then you will find the whole tree is highly contorted, a very lanky panky tree. You know, very thin kind of a tree. Foliage is also not very attractive but the flowers are highly attractive, yellow coloured. So whenever you see Tabebuia spectabillis, the flowers, it attracts. Now when it comes to its another option the Tabebuia rosi is a tree which is you know which looks very dissimilar to the Tabebuia spectabillis, very large tree, very tall tree, quite organised. Tabebuia spectabillis will be a slightly contorted.

Tabebuia rosi is very straight, direct and white and it has pinkish, rosi means rosy, means pinkish flower Okay? So it is so whenever you use the term Tabebuia, if you use only say I will be

planting Tabebuia, you are half right. You do not know that which plant basically? Is it spectabillis or rosi? If by mistake, you wanted rosi and then somebody has planted spectabillis, just totally different thing will be created. So be very very cautious and careful about the identity of the tree.

So my 1st suggestion is try to know the scientific and botanical names of all the trees that you want to or plants that you want to handle in your landscape. If possible, try to know the common English name. If possible. If you do not, do not lose heart and do not get depressed. No no, I do not require because ultimately, prescription is going to be the scientific name.

It will always be beneficial if you know the local name to communicate to the local people that what plant you have said but since like in India, we have so many languages and the same tree will be given you know called by so many names, it is really very very difficult to know the names of all these languages. But what I do is, if suppose I am designing a landscape in a particular region, then I try to find out what is the local language and then in the local language, what is that particular tree called and try to record it.

Okay? There are some studies, some researches I found in which they have tried it but they are dialectically so much variable from region to region that it becomes a difficult task, neither it becomes a very scientific approach. It is only for communication, but not for technical use. So this is it. So you use the identity. Now coming to the 2nd part of it, the 1st part, the plant scientist, horticulturist or botanist, they will handle.

I am very much concerned about the 2nd part of it. 2nd part has to be understood well. How it is generated? How it is given name? Most often, it is representing some of the characteristics like say here it is read this again. An objective or phrase expressing a quality or attribute regarded as characteristic of the plant. Some attribute by which it is.

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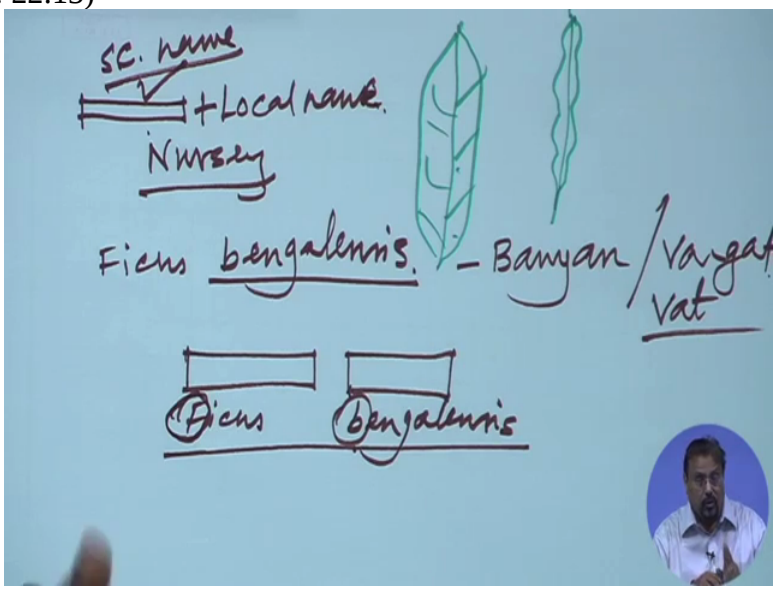

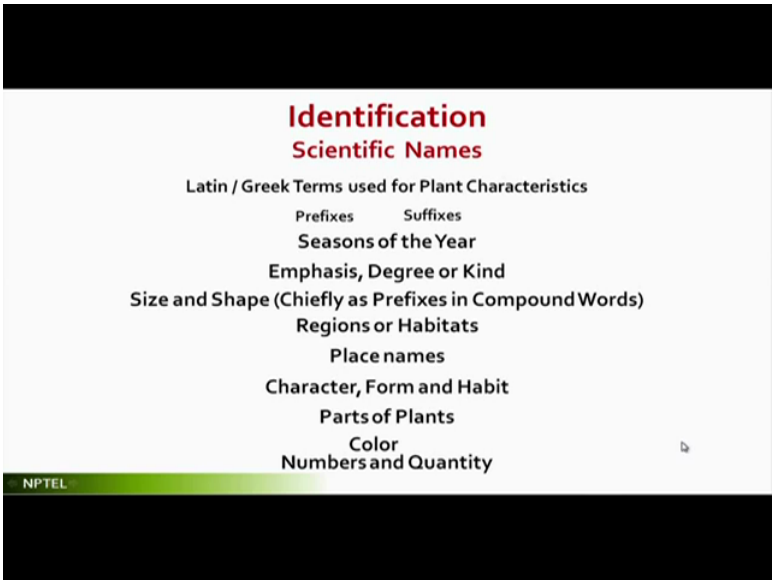

Okay what are those attributes is this list. In terms of scientific names, it is Latin or Greek terms used for plant characteristics. It may be used as a prefix or as a suffix, it may be represented in terms of the seasons of the year. So when I am talking about this, basically I am I am referring to the 2nd part of the name. 2nd part of the name may be represented in something about the seasons of the year or but there cannot be 2 names of the same plant, mind it.

There has to be a unique name. The unique name is genus and then the next part. The next part has to be unique name. Generally, there are I have found that there are sometimes 2 names for

the same plant but one has to be very cautiously using it knowing that which one is the best representing it. It may be seasons of the year represented or emphasis or degree or kind. It may be size and shape means chiefly as prefixes in compound words. What happens is size and shape sometimes you know it gets added to another word. Like an example will tell you. You know Deodhar tree. Deodhar tree is that which has a leaf like, this kind of leaf, you must have seen this. This kind of leaf, Deodhar tree.

And the name of that particular tree, one of the Deodhar is Polyelthial longifolia. Polyelthial is a genera, longifolia has 2 parts - longi means long, folia means foliage. Long foliage. This is what is. Now here the longi is basically the prefix of the foliage. So sometimes so whenever we are using size and shape essentially as prefix for most often, it is prefix, then regions or habitats, means which region it is, what kind of habitat it is, then place names. As I said, bengalensis Bengal.

Sometimes regions. Character, form and habit. Overall character, overall form, habit. Parts of the plants. Sometimes, even the parts of the plants. It is you know, which one will be used, that you do not know. Some scientist who has identified this tree or plant and then brought into the dictionary of plants or the identity of plants, it is the way the scientist thought best representing it. So you have nothing to do.

What you have to do is, you have to learn it, you have to know about this plant. Then the colour. Even the numbers and quantity. I will go into the detail of this little more so that you have a clear idea about it. I will go little fast on this.

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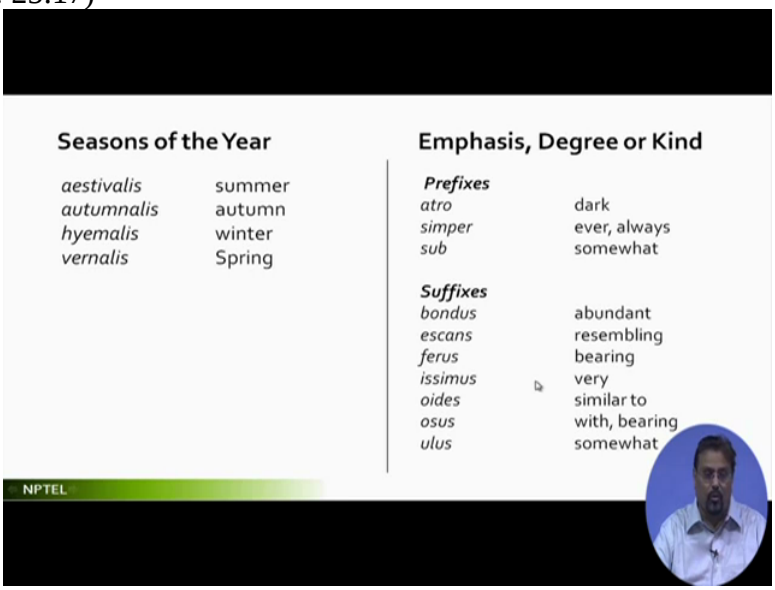

See, I will give a list of plants in terms of seasons of the year. I will not read out all but this list will be available to you through this particular screen. So it is basically you have to read it over and over again but I will draw your attention to some of the specific names which are very commonly being used for common trees which you have seen or you might be seeing it. But what it is time to represent in terms of seasons of the year is this.

See, this is a Latin name and it means summer. See all these names are not very easy to pronounce of course but let us say. Autumnalis represents autumn, aestivalis represents summer, vernalis represents spring. So if you find any name which has anyone of these cars, then definitely it is representing season of the year for that particular plant. This is how you should look at it. Okay?

Now I am going little further faster. In terms of emphasis, degree or kind. If it is prefix like if it is used as atro, then it means dark. If it is simper, it is ever, always. If it is sub then it is somewhat. I hope this now you are understanding what I am trying to say. In terms of suffixes, if it is bondus, abundant, if it is escans, resembling, if it is ferus, bearing. Issimus-very, oides-similar to, osus-with or bearing, ulus is somewhat.

So basically what happens is if you find a name which has 2 parts in which you have found that this as a part of you know 2nd name part of the 2nd name as a suffix, then you should understand

that try to find out from this list that it is Latin name given to this. The entire list is given in one of the very famous book written by Gordon Hefnecker called horticulture. I would advice, this I have given in my reference list that I would advise all of you to read that particular book, wonderful book to know about the plants to the great details.

I found it to be one of the finest book. I think it was published sometime in 79 or 80, that time. That means book has been published then and if you go through that particular book, you will be definitely getting all this information. Okay?

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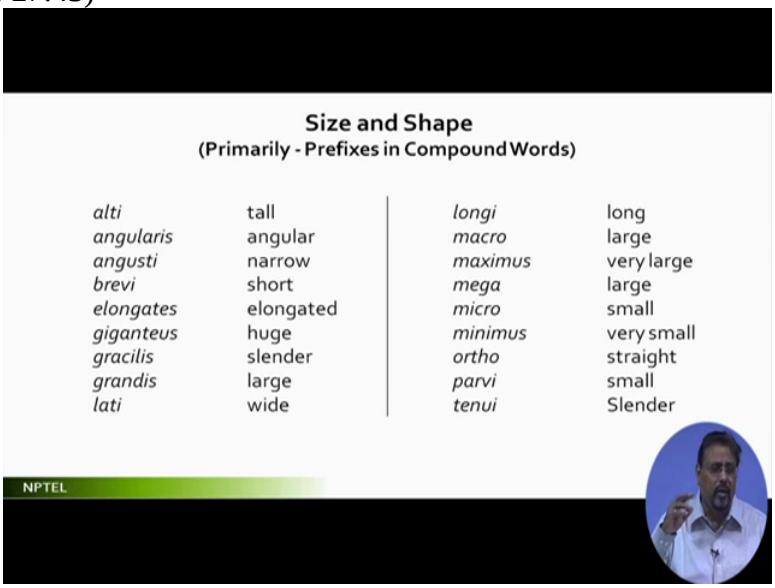

Then in terms of size and shape, primarily prefix of compound words. alti means tall, angularis is angular, angusti is narrow, brevi is short. See, you remember the word called brevity. Brevity means short shortness. Short, elongates is elongated, giganteus is huge, gracilis is slender, grandis is large, and lati is wide. Now I am just naming one. Since I have got this example over here, see lati. There is a tree called madhuka latifolia.

The madhuka latifolia you know this particular tree has fruits which is good for making country liquor. The fruit smells and that fruit if it is prepared well it becomes a country liquor called mahua. So the common local name is mahua, Botanica name is, so scientific name is madhuka latifolia. Latifolia is now the 2nd part of the name and the latifolia is now split into 2 parts is latifolia- lati is wide, follia is foliage.

Now do you get the idea? Madhuka latifolia is having wide foliage. That is how the names are generated. Some more. Longi. Folialthia longifolia just now I said Folialthia longifolia, Long foliage, okay? So macro is large, Maximus is very large, mega is large, Micro is small, minimus is very small, ortho-straight,pervi-small, tenui is slender. Even if you now try to find out various names of the list of from the plant list, then try to read through the 2nd of it.

The genus part you do not focus much but of course, if you are trying to know the plant, you have to know both but you focus on the right-hand part of it and then you try to see, does it match with any of these characteristics somewhere or the other. Then you will get a clear idea, how to register that also in your mind okay?

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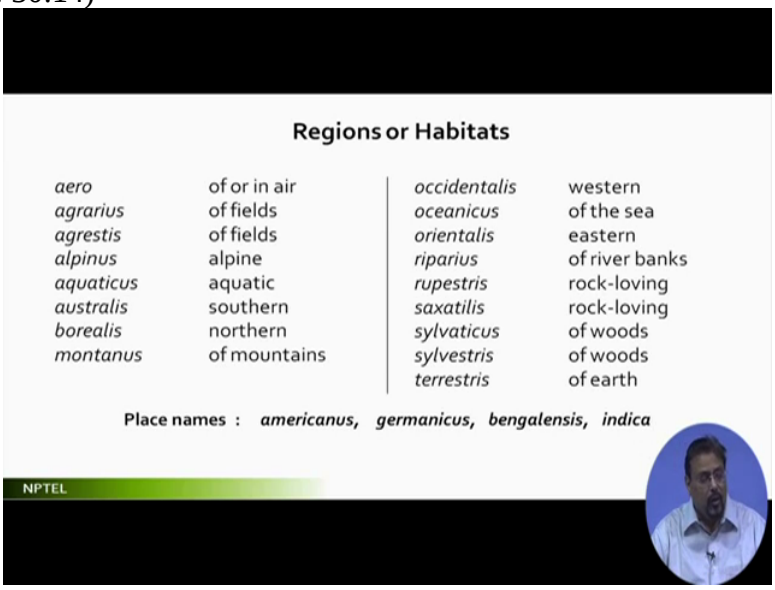

Then another set is regions or habitats. If it is aero, means of or in air okay? agrarius is of fields, , agrestis is of fields, alpinus is alpine, aquaticus is aquatic, australis is southern, norealis is northern. See basically regions. Montanus isof mountains. So if you find a tree with something some indication of Montanus then you must immediately infer that this must be growing in the mountains or if you find australis as a part of the 2nd name, then definitely you should say it is southern region of the world.

occidentalis is Western, Oceanicus is of the sea and that is postal stop Orientalis is eastern. All these Eastern, Western, northern, southern, is with respect to the earth. Riparius is of riverbanks,

rupestris is rock loving, saxatilis is rock loving, sylvaticus is of woods, Sylvestris is also woods, and terrestris is of Earth. There are some names which you will get which will have a part called Americanus, that means it is from America, Germanicus is from Germany. Bengalensis is from Bengal, Indica is from India. So I hope by now you understand that how these nomenclatures are given.

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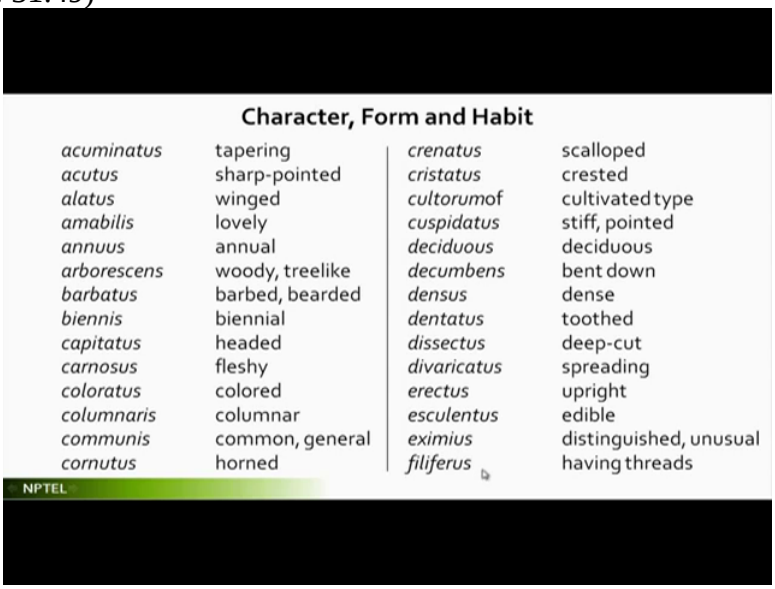

Character, form and habit. I will go a little quickly now. Acuminatus is tapering, acutus is sharp pointed, alatus is winged, I am just naming one more, one tree here, alatus. This is tree called starcolia alata. This tree I will discuss when I will talk about the plants in detail in my next series of discussion, series of lectures. Starcolia alata is a tree which has you know, the tree looks like wings. You know it spreads.

So when the name has been given, the alata word has been added to it. 2 ways of alata you can see, wings in terms of its branching and also it has roots which are of bulbous nature. Bulbous means spread like wings. Okay? So alata. Annuus is annual, arborescens is woody, treelike, barbatus is barbed, biennis is biennial, capitatus is headed, carnosus is fleshy, coloratus is coloured, columnaris is columnar, communis is common or general, cornutus is horned.

I would suggest, I am just reading it for you so that you know, it enters your ear and you get a little idea about this but I would suggest that you are downloading this particular lecture, read it

over and over over again so that you get idea about this. crenatus is scalloped, cristatus is crested. So similarly like different others, I am just you know going quickly through this so that I do not have to spend much time on this, densus dentatus you know dentatus is tooth. Dentatus dental, tooth, so you always get a co-relation between this.

Erectus is upright, erect okay? esculentus is edible, eximius is distinguished or unusual and filiferus is having threads. So if suppose you find somewhere the name called filiferus then you must understand that somewhere, either in the leaves or in the brands or somewhere, threadlike things will come in. Okay?

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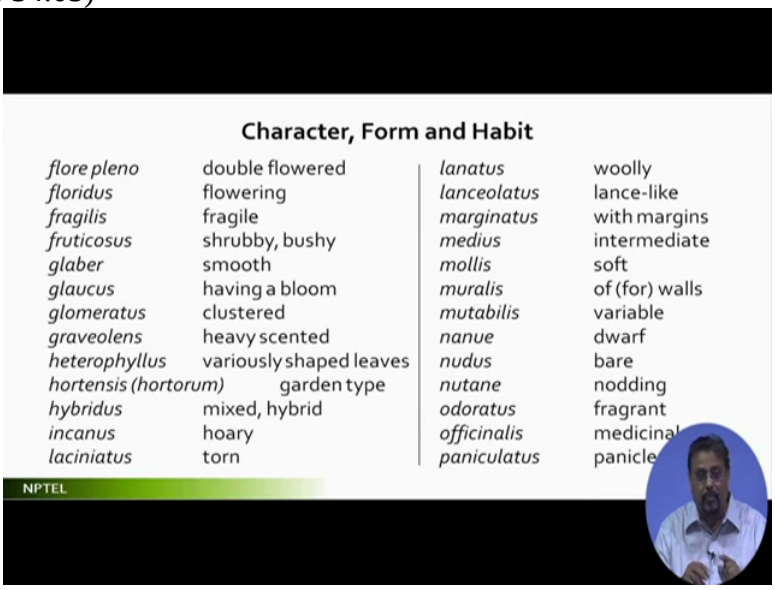

Then character, form and habit in which you have double flowered, then floridas is flowering, fragilis is fragile, fruticosus is shrubby or bushy, glaber is smooth, let me name another tree, Pongemia glabera, Pongemia glabera is crunch. crunch tree is a large tree. Glaber is smooth okay? What is smooth in that tree? If you take a leaf and look at it, it is so shiny smooth, so glamorous okay? And scientist when he was trying to give a name to it, he made it glaber. Pongemia glabera, the name is given in that form.

Okay? Similarly different others, hortensis, let the give another name for another tree, hortensis, there is a tree called millentonia hortensis. millentonia hortensis's common English name is or even the local name is Akash Neem, highly fragrant, flowering tree, tall tree is with leaves with a

different type of parted kind and has small white flowers hanging like bells. You can always smell this around. If there is one tree in your region, definitely you will get the nice smell but only thing is you have to really take pain to find out which tree is really spreading the fragrance.

Millentonia hortensis which is garden type, usually placed in the corner of your garden property. Okay? Hybridus is next, then incanus is hoary and then laciniatus is torn. Okay? So similarly the other names. So let me see if any other examples which I can find out from here which I can say. Okay, look at this where my cursor is, officinalis medicinal. You know Amla? Amla is a medicinal fruit that we use for digestive. That's name is emblica officinalis. emblica resembles with our Amla in Hindi.

So emblica officinalis, officinalis the moment you find officinalis as a name, part of the name then immediately you should understand this tree must be having a medicinal value with its fruits, or the leaves, or the branches or whatever. Okay? That is how the whole thing is.

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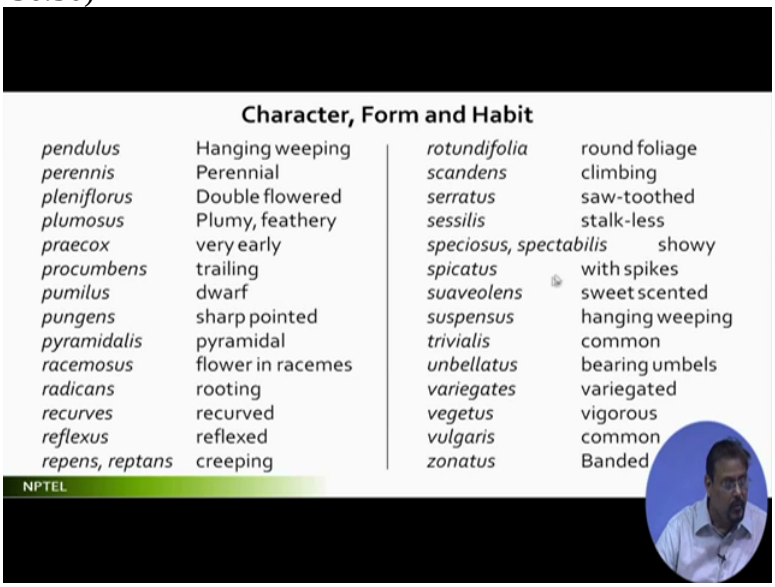

Some more, quickly. Pendulus is hanging, Polyelthia pendula is one such. So you go through all this list as I have given over here. Let me see if any name which I can bring to your knowledge with respect to the common trees because all these trees names I am saying is common. All right, this is by this kind of character, form and habit.

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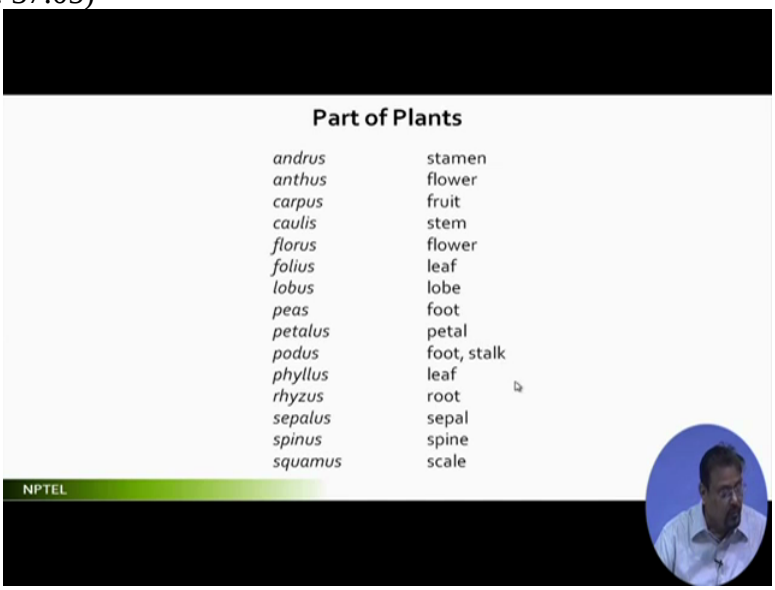

It may be with respect to the parts of the plants. If it is andrus, it is stamen, if it is athus, it is flower, if it is carpus, it is fruit, caulis is stem, florus is flower, folius is leaf. longifolia you remember. Longifolia, long folia, long leaf okay? Lobus is lobe, peas is foot, petalus is petal. If you go through this list, you will definitely have a clear idea.

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Some more, quickly I will go to it. albus is white. Remember, just now I said Plumeria alba, alba is white. Let us see some more. Okay, azureus is skyblue, caeruleus is dark blue, I am just trying to see which name can be referred for your list of okay here I do find. Remember I said, the

Plumeria albus, so the flower is whitish, Plumeria rubra, rubra is reddish. Plumeria , 2 different species with 2 different characteristics, one has a white flour and there is a red flower. You remember, just now I said tabebuia rosi is a rosy colour, pinkish colour okay? That is how the whole thing is.

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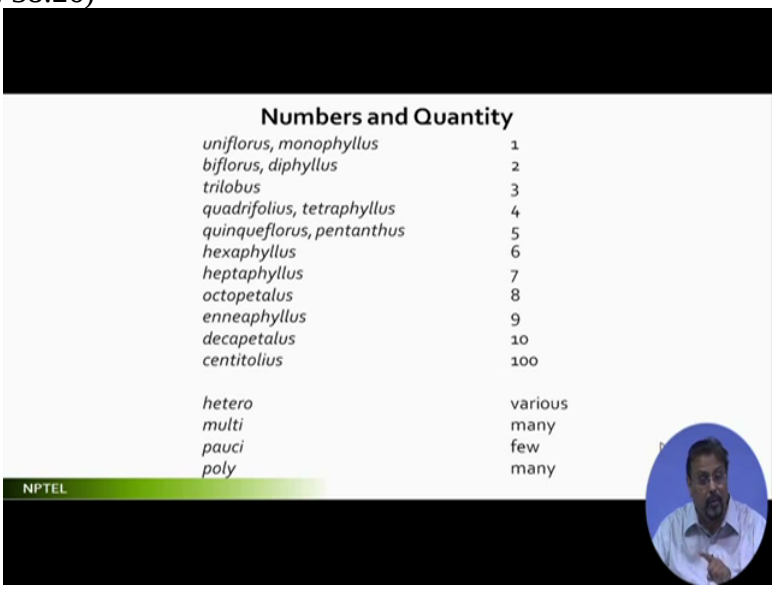

So when you try to understand this, you will find, this gives a very interesting, clear idea about it, the last of these nomenclatures thing is in terms of numbers and quantity. Okay, if it is uniflorus means one, biflorus is 2, trilobus is 3. So similarly, different others. So decapetulus is 10. But see this hetero is various, multi means many, pauci means few. paucity, you remember the word called paucity? pauci means few, and poly means many okay?

Remember that Polyelthial longifolia. poly part is a part of the genus in which it is many. This is how the whole thing is.s so whenever you are trying to know about the plants, try to read through this, try to be more inquisitive about it, more interested in it and you will know these, what is lying next is the characteristics when the attributes which I will be discussing in my next lecture. Thank you very much.