agMOOCs
Three weather codes and crop production
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Dear all. I am very happy to meet you again during this week. Last week we had five classes or five lessons basically dealt with the basic aspects of atmosphere, climate, weather and little bit do not lot on rainfall, relative humidity, temperature and wind. This week we will be learning something different with that basic knowledge. For today's discussion I like to deal or I like to speak on three weather codes and crop production.

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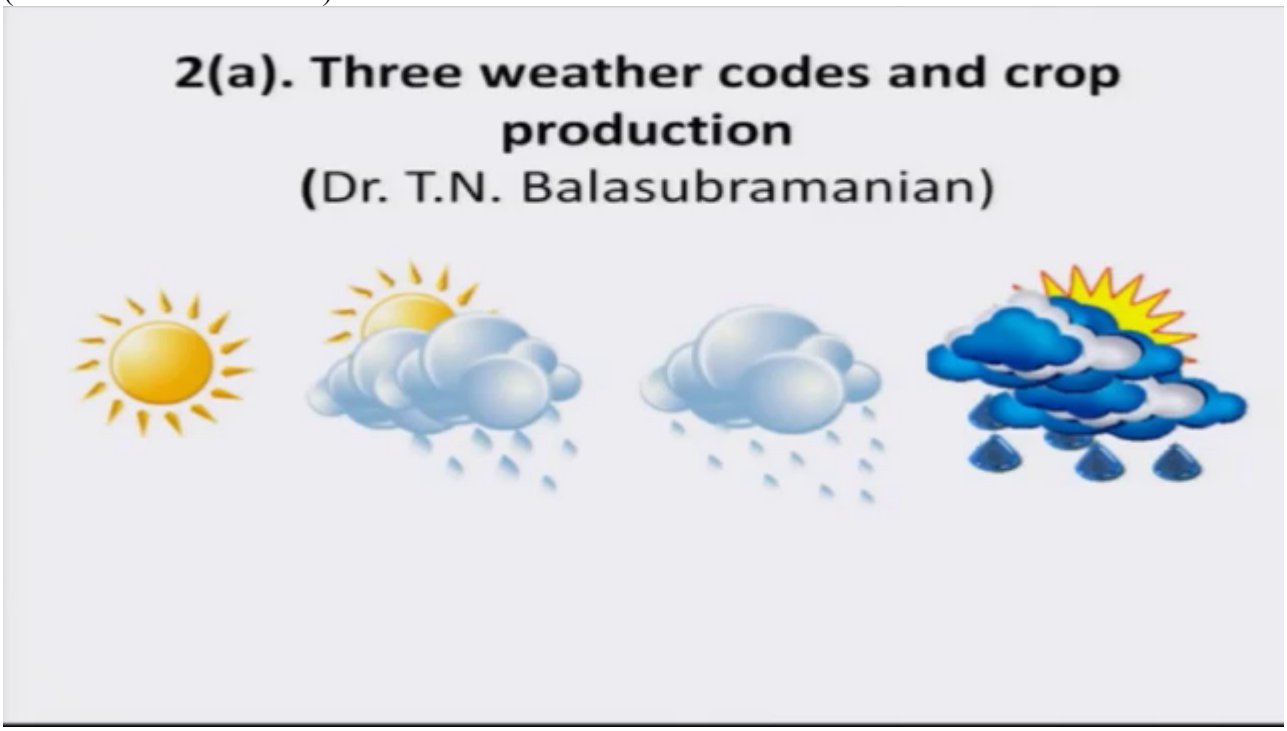

You know what is weather code (inaudible 00:01:02), but must be familiar with dress code, that is still existing in school, colleges and department of police at all states. So there is some system of weather codes. So these weather codes have some impact on crop production or these weather codes carry some risk on crop production and those will be discussed properly during this class.

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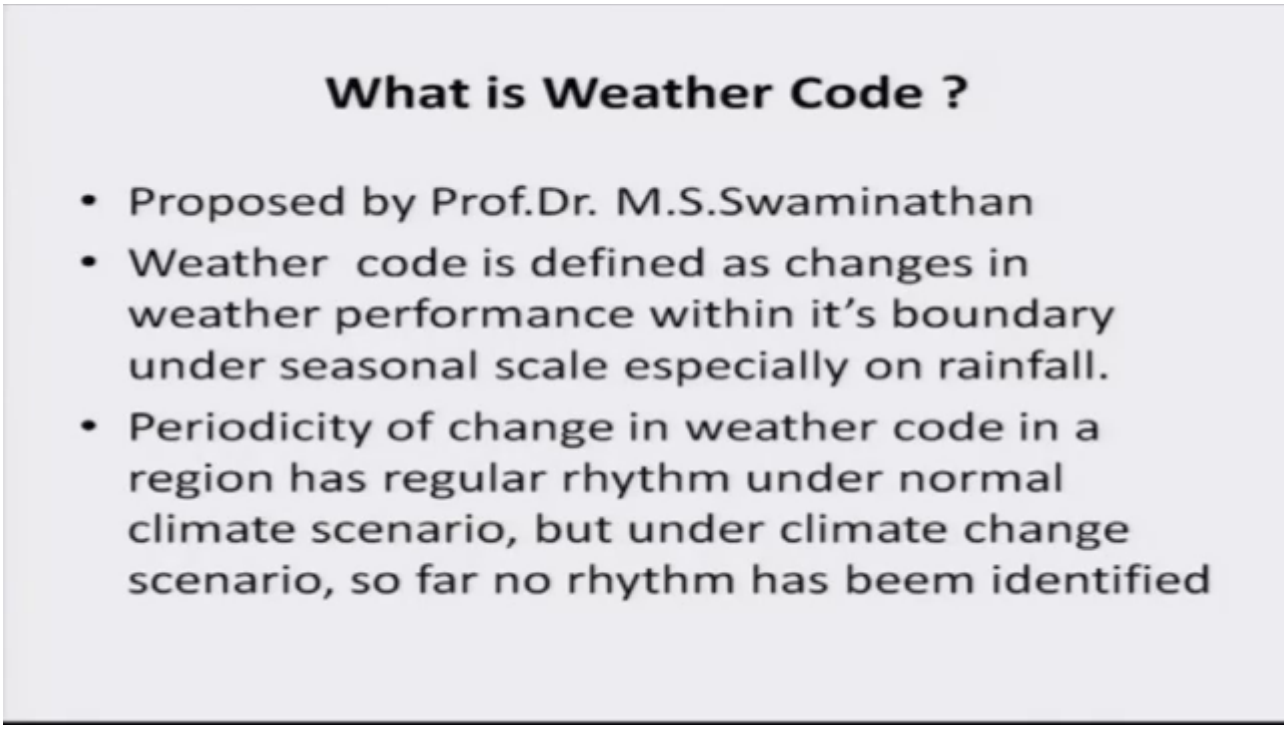

So, let us discuss what is weather code? So this weather code was proposed by our beloved Professor Dr. M.S. Swaminathan. He has addressed these weather codes with reference to management of climate or weather of a particular domain. He also proposed climate managers and mountain managers and those will be discussed at later classes. We can define the weather code as changes in the weather performance. You know what is weather day-to-day change in the atmosphere, within its boundary, boundary means not beyond boundary, within the limited level under seasonal scale especially on rainfall.

So in the weather code we mainly address a rainfall rather than on temperature, wind, because these are all complex. If you say rainfall it envelopes all wind, temperature and relative humidity and everything. So I have given as rainfall. So weather code is defined as changes in weather performance within its boundary under seasonal scale especially on rainfall. And we can also characterize this weather code. The periodicity of change in weather code in your region has a regular rhythm, regular rhythm means once in four years, once in three years, once in two years under normal climate scenario. But if you anticipate same rhythm during the climate changes scenario it is not studied properly. What will happen whether the rhythm is going to continue or it is going to discontinue, we do not know. Studies are going on whether weather code is going to be there or not.

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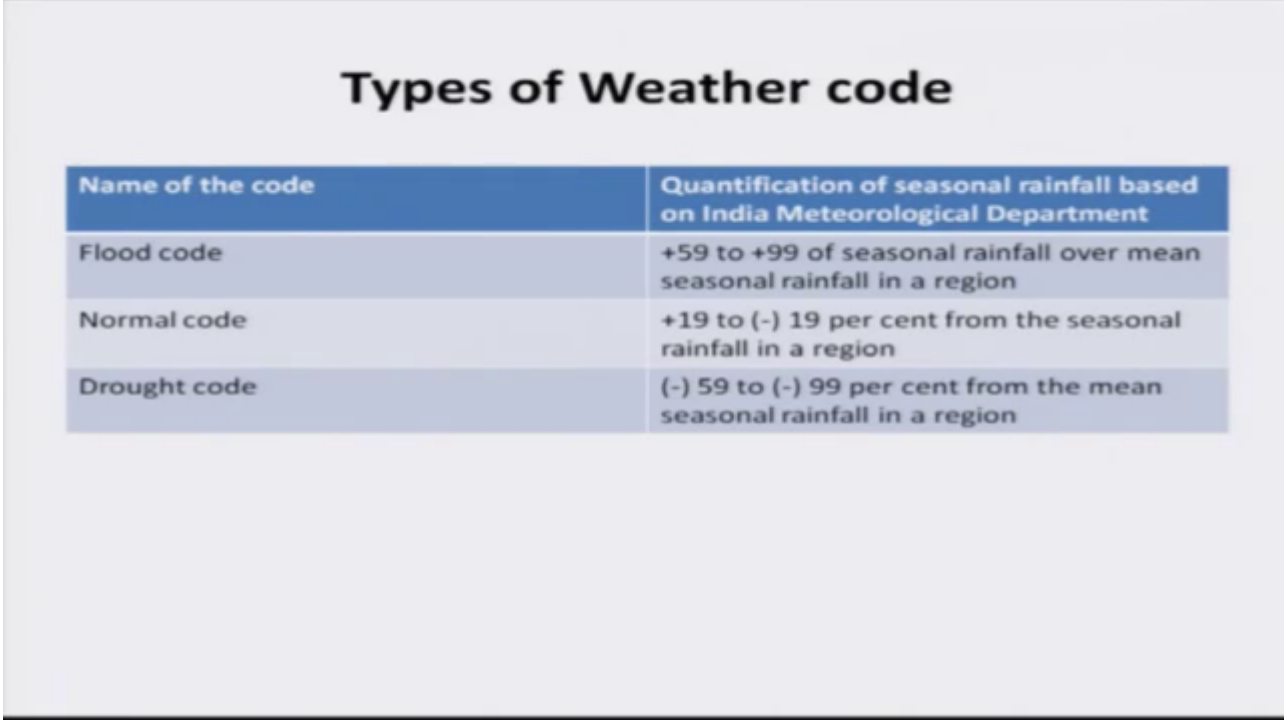

Let us move to other information, so types of weather code. In literature there are three weather codes as proposed by Doctor, Professor Swaminathan, one is flood code, another one is normal code and third one is drought code. These codes are been identified or these codes are been given boundary by the India Meteorological Department. Flood code, so there for every area there is a mean rainfall. So if there is a variation in rainfall from the mean then we say the code gets deferred. For normal, normal situation, normal weather code the variation is from plus 19 to minus 19% from this seasonal mean rainfall, say, average rainfall. Over 30 years what is the normal seasonal rainfall? If in the deviation is plus 19 to minus 19 from this mean rainfall then it is normal code, the crop production would be very very in normal.

Then there is one flood code on the positive side. If the deviation from the normal rainfall is plus 59 to plus 99 percentage that is the [inaudible 4:49] then it comes here flood code. And the extreme other end is drought code, where the rainfall deviation from the mean rainfall is minus 59 to minus 99 percent, one is bountiful excess or wet, other is extreme, no moisture and in between there is a normal weather code. So these weather codes have different impact on the crop production or crop planning or anything you can take it as it is.

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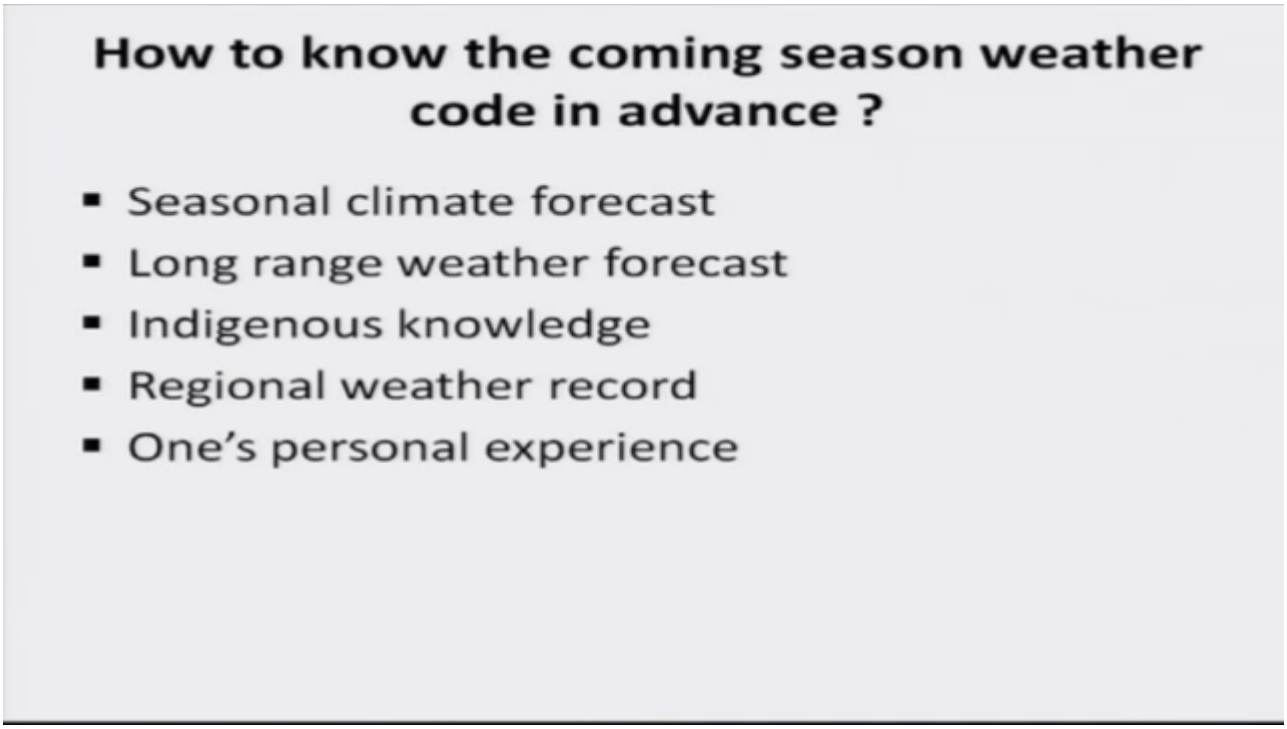

Now how to know the coming season weather code in advance? I told weather codes, sir, how to address these weather codes? Can I anticipate? Yes. Decision form management decision, weather-based decision may have to be taken based on the anticipated weather change. So probability level may be differing 60 to 100 percent. So in the case of seasonal scale the probability would be around a 60 percent. Now from what source you can understand the forthcoming weather situation falls on the normal weather code or flood, drought code or drought at record.

So one source is seasonal climate forecast. The seasonal climate forecast is being given in Australia and also that is being given in India also especially in Tamil Nadu. So through rain mean software we produce the seasonal climate forecast and give to the farmers on a village basis. So the coming season would be having normal rainfall or would be having extremely high rainfall, or would be giving a steaming low rainfall, based on that you can prepare your crop planning and other things.

Another source is a long range of forecast being given by our India Meteorological Department. Again it is being given through statistical method. So this is given about the 45 days in advance to the occurrence of the season which we will be discussing later. Then indigenous knowledge, certain tree, flowers earlier indicating that the season would be highly responsive or you know there are some birds. The birds what they do is if they lay eggs on the upper side of the tank or bund of the tank then you can see that there is going to be a flood. See the bird just knowing that they are going to have a bad season, bad session means higher flood situation. We have to protect our generation, so it lays eggs on the bund. So the birds will have better life in future.

If it lays eggs on the floor of the tank or the ground level then it is going to be a drought, like that they are indigenous knowledges or as are many and it varies with the location and other

places. Then regional weather record, based on the analysis we can say analog analysis, based on the analysis of the past data maybe 200 years or 300 years then you can pick out that this year would be like that. Then once personal experience; many people are living old, 80 years people or maybe in the village, they that about 10 years back same situation, I felt so this season would be like that. So these are some sources by that you can understand what would be the fourth coming weather.

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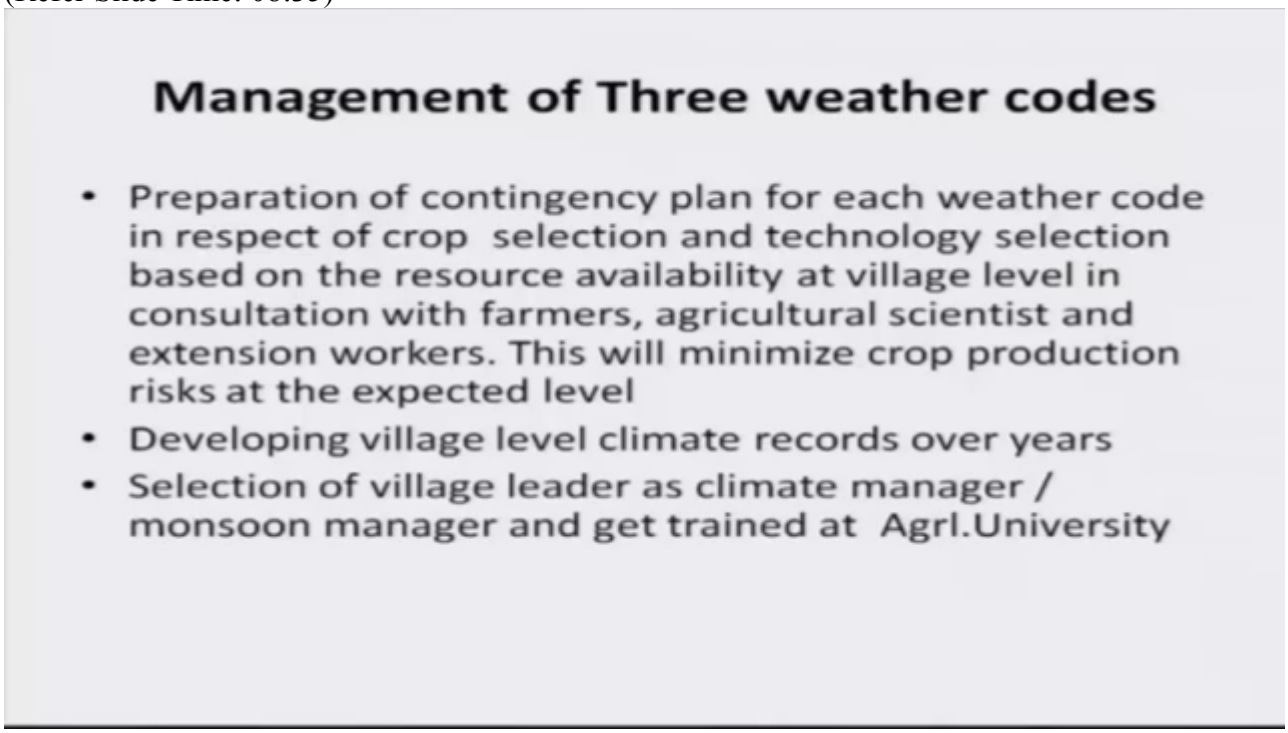

Now management, how to manage these weather codes? The simple way is preparation of the contingency plan. So the conditions a plan in respect of crop selection, technology selection based on the resource availability at the village level, in consultation with the farmers, agricultural scientists and extension workers, this will minimize crop production risk at the expected level. What this is? Suppose the drought comes, avoid rice planting, avoid sugarcane, avoid your banana planting, if these plantations are already existing irrigate with a lesser amount or go for drip irrigation, so some technology has to be introduced. In this way you have to prepare contingency planning separately for drought, separately for flood and separately for normal code, normal code does not require any contingency plan. You can do your crop management as it is. But drought and flood you have to prepare certain selection technology something differently so that you can reduce the risk.

Then you also, you have to develop village level climate records over years. In the last slides I was discussing about the analysis of the past record. That record you have to develop, that is developing village level climate records by that you can able to see what, where the technologies we have followed during the period then same thing can be adopted with little modification. And also selection of villagers as a climate manager, trained them as a climate manager or monsoon manager, this is very, very, very important. Our Professor Swaminathan used to say that climate manager or monsoon manager at the village level is most critical and most warranted personnel. After they are based on their knowledge and strength they can able

to guide other villages so that the crop production risk could be minimized. So, that's all for today's class. Let us go further in the next class. Thank you very much.