

## Saving rambuttan trees

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Apple and snow are inseparable, in a way like a couple. When snow disappears for good, the other could only weep because it could no longer bear fruits of their love. 'Weeping Apple Tree,' tells a true story of the shifting apple growing belt in the Himachal Pradesh, India in the BBC series 'Climate, Change and Untold Stories.' The decaying single apple tree weeps in Bajaura village in the Kullu District, because it lost snow forever, as the globe is warming up and the climate is changing.



Dr. Pradeepa Alahakoon, Research Officer (Plant Pathology), Fruit Crops Research Institute, Kananvila, Horana.

Once, the village produced delicious apples for India and the neighbouring countries. With the passing time, the global warming deprived Bajaura of its white snow compelling the apple growers to switch to vegetables! This is poignant story director Vijay Jodha captured in the documentary.

### What is to be done?

But, what if the rain misbehave and trees bearing yummy rambutans in Malwana would not fill their branches with red and yellow fruits during their proper season? Would rambutan growers desperately fell their rambutan trees to plant coconut and rubber again? Probably, they would, in the years to come. "This shows how global warming and climate change affect our farmers and their angry response," notes Dr. B. V. R. Punyawardena, Head of the Climatology Division, Department of Agriculture, Peradeniya.

To Dr. Punyawardena it is an extreme situation to which he could not agree with. "That shows how dangerous the situation is. They should not depend solely on rambutan. They should try some other crop under the rambutan trees," he suggests.

The rambuttans, which have only one annual harvesting season, make their growers desperate when the crop failed due to unusual changes in the climate. The growers in these areas patiently wait year after year hoping to see a

flourishing yield, each passing year they become more distressed to see being let down by the climate. "There has not been a proper rambutan season since 2004," growers in Malwana complained.

### **'Rain spoiling yield'**

Dr. Punyawardena explained that tree fruit crops such as rambutans, avocados, durians and mangoes need a critical dry period for flowering. Out of these, rambutan usually flowers during the traditional dry period of February and March. Just as traditions are challenged, could this traditional dry period go unchallenged with emerging threats of the climate change?

"Traditionally we had this critical dry period in February. But during last decade most of the times we did not have this on proper time," says Dr. Punyawardena.

"There is a classic example, to show how the rain would tumble the yield," he adds, referring to the rainfall figures in February and March, 2008 and its aftermath on rambutan yield in Pasyala area in the Western Province where crop is mainly grown.

According to the Agricultural Department statistics, the long term average rainfall, or the amount of rain traditionally the area used to receive for thirty years or more, in the month of February is 131 mm, which had been zero in February, 2007, and was 248.5 mm in February, 2008, roughly doubled the amount of rain the area received traditionally.

The long term average rainy days in February are five but there were none in February, 2007; whereas, in February 2008 there had been ten rainy days, twice as many days as the area usually get in February.

"Although February 2007 received 131 mm it did not affect the yield but in February 2008, it was too much and really affected the yield," he commented.

The scenario was similar in March, 2008. According to the same source, the long term average rainfall in March is 228.9 mm and in March, 2007, it was slightly more, 244.8 mm. Whereas 424.8 mm had been received during March, 2008. The average number of rainy days in March is eight; however, there had been only six rainy days in March, 2007. It was significant to note that there were 22 rainy days, nearly thrice the average, received in March, 2008.

The rainfall figures well demonstrate that during the particular period in 2008, these areas had received twice as much as rainfall, the areas usually get, drastically reducing the rambutan yield, he explained.

According to department statistics, rambutan trees in some areas did not flower at all, in Urapola area in the Western Province not a single rambutan tree bore flowers.

In Ellakkala area only 20% trees of the flowered trees in 2007 bore flowers. But these 20% of trees only had half the amount of flowers which they used to bear.

Similarly, 72% trees did not flower, only 28 trees had flowered in Radhawana and number of flowers had been reduced by half. Nittambuwa and Halpandeiya half the number of trees did not flower and the numbers of flowers were almost reduced by 50%. "This amply shows that change in the rainfall pattern had hit the fruit crop hard," he said.



Senior Meteorologist K. H. M. S. Premalal, Agro-Meteorology Division, Department of Meteorology, Colombo.

### **`Akalata Wehi'**

It has been observed that there is an irregularity in the whether and uncertainty prevails as to whether the conventional dry period would come or not.

"This year we had the dry period but next year it might not come. Monsoonal rain had become highly variable and we would not plan any thing. Simply, we would not get enough rain when it is necessary and get more rain when it is not necessary," he added. Although the country did not experience any significant increase or decrease of the total annual rainfall, the irregularity had increased.

Dr. Punyawardane said that the country really do not want rain during February which is the paddy harvesting time. Rain in February is not only bad for rambutan and the paddy harvest.

"We rarely had this phenomenon, earlier. Our parents and grandparents used to call this `Akalata Wahinawa'. But now this is not rare any more but has become the norm. This unusual weather condition comes so often."

He agreed with growers' claim that there had not been a proper rambuttan season after 2004 most of the time February was wet.

### **Scientific evidence**

the farmers who spend whole day in the fields know best about the climate changes, says Senior Meteorologist K. H. M. S. Premalal. "He would say that there is plenty of rain when it is not needed and drought when he badly needs water. We analyze the date and make our predictions. But farmers say that with their experience.

But what scientific evidence is there to prove that climate is really changing in Sri Lanka? "The majority of scientists believe that the changes in the climate are due to the global warming," he answered. He explained that there are two major factors to show that the climate in the country is changing; the increasing temperature and the variability in the rainfall pattern.

The increasing temperature is evident from the increase of the country's night time, temperature for the last century. The day time temperature increase was slight, he pointed out. Decreasing trend in the number of cold days and cold

nights and the increasing trend in the number of warmer days too point to the increase in the country's temperature, he noted.

### **`Variability in rain'**

Premalal explained that the variability in the rain has a broader meaning; monsoonal or inter-monsoonal rains, would come earlier or delayed than usual. Last year's South-Westerly monsoon had been delayed for more than three weeks. It was also noteworthy that the Kandy including Victoria, Randenigala catchment areas did not receive any significant rainfall during the South-Western monsoon which usually brings heavy rain to the area.

"But Kandy did have a lot of rain in February, 2008, which is supposed to be a dry period, compensating the less rainfall during monsoonal rains in June and July," he added.

The broader meaning of variability also includes the intensity of the rain received. "Nowadays we receive month's rain just in the matter of a few hours, unlike in the earlier," and longer consecutive dry spells in between two rains. "But during the last 40 years we find shorter dry spells then and there. But after 1998 there are dry spells more than 100 days long."

"The established climate pattern would no longer be there.

Whether the rain might come on time or not and at what intensity is hard to tell. And there will be longer dry spells which is not suitable for cultivations," he reiterated.

### **`Powderly mildew'**

The change in the weather pattern was to blame for the Powderly Mildew fungal attack on the rambutan trees during this season, said Dr. M. S. Pradeepa Alahakoon, a Research Officer attached to the Kananwila Fruit Crops Research Institute, Horana.

"The season came unexpectedly. The rains stopped suddenly in mid December and then began the drought," she explained that the early dry period made the plants flowering. "The farmers were not prepared; they had not pruned the trees and the surroundings had not been cleaned," she pointed out.

She added that the sunlight destroy the fungus if the trees were pruned and surrounding is kept cleaned. Most of the trees in had been affected with the disease reducing the yield, growers complained.

The dry weather is ideal for the mildew fungus to thrive, although, generally the fungal disease are reduced during the dry period. She explained that most of the fungal diseases emerge basically during the dry period although they begin at the wet period. "The rambutan did not have any disease until the mildew was first identified five years before," she said.



Dr. B. V. R.  
Punyawardena, Head of  
the Climatology Division,  
Department of Agriculture,  
Peradeniya.

The farmers claimed that, there were some trees that have both flowers and unmatured fruits at the same time. This condition lessens the yield and such trees are prone to pests and fungal attacks.

"If only we had some chemicals to flower the trees simultaneously," the growers lamented. They pointed out that there is only one natural triggering factor for rambutan to flowers i.e. the dry period followed by rain or dew, they said.

Dr. Alahakoon, too is agreeable that ideally, growers should have use chemicals to stimulate the flowering artificially. "Then it would stress all the trees equally, and this would give fruits simultaneously." She said that although there were some researches were carried out, no recommendations have been made.

"We have to go for such options if this weather pattern would continue to be unsystematic," she emphasized. Countries such as Thailand, Malaysia use this method to stimulate flower-bud initiation.

She was of the view that the use of artificial stimulants to be an adoption method that would probably save the rambutan trees of Malwana and the growers of their livelihood from the grip of climate change.

Snow melts away for good, leaving the decaying apple tree weeping; the nature's bond of climate and the living beings have been broken and the villagers in Bajaura in Himachal Pradesh lost their livelihood as well as apples. So are the rambutan growers of Malwana facing the inevitabilities of global warming and climate change. Should not the authorities intervene before growers would loose their love for this fruit tree?

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