Nanotechnology in Agriculture
Prof. Mainak Das
Biological Sciences and Bioengineering and Design Programme
Indian Institute of Technology-Kanpur

Lecture-06
A Restart_Utilising Our Discoveries

So in essence as a race we have reached this part, we have discovered fertilizers, we have discovered weedicides, we have discovered insecticides, we have discovered several technologies, but now the time has come where we have to fine tune all of them. In last 100 years was one of the finest period for mankind to you know make this discovery starting from Haber's process to series of discoveries, all the way to recombinant DNA technology, introducing engineered various particles, genetical engineering the crops.

Those are breakthrough which human race has never seen over here, yet we have reached the point where you have to think how we can now if we have read this part, how we can really precisely use this tools, so the message what I wanted to put across to this lecture is it is one of the greatest thing what is happened, but now the time has come where we have to utilise each one of these tools.

Whether it is a genetic engineering tool we will be needing it how much over like that our productive individual prerogative, but move on there is no way to look back ok, will be needing fertilizers so no way, we have to resort to the newer technologies like hydroponics why of use water resources to grow crops in cities. We may have to use our rooftop all over around of every possible space.

Because we are living in concrete jungles, where few are rooftop there is enough sun, we have to ensure the water, what we are utilising is getting purified, we cannot look back, we have to use this chemicals, we have to use some of these insecticides, pesticides, yet what you have to do is that is why comes that keyword what is trying to highlight is this word.

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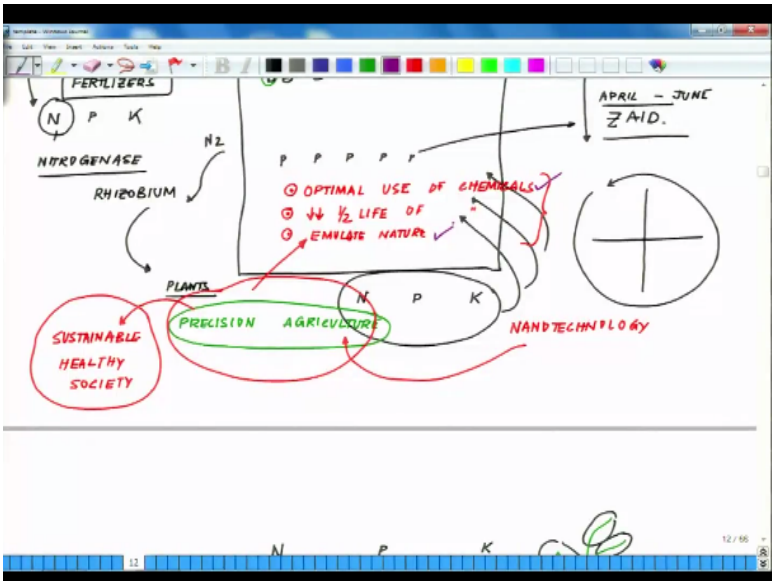

Precision agriculture precise use and the domain of nanotechnology what we are going to discuss for next 7 weeks, will highlight continuously to this point that how nanotechnology or these tools can help in fulfilling the dream of precision agriculture for a much more sustainable healthy society. In terms of precision agriculture we are with the few things which will come very handy for us to realise, one will be optimal use of chemicals one concept.

The second thing finding out ways more half a less half-life of this chemicals. So less half-life means faster the degrade and much more these compound should emulate nature, in other word nature produces antibiotics, nature itself does all these things, could we emulate them. So that those compound should not be an foreign body, we may use jack up the use of it slightly excess, but it should not come as something very foreign, something with nature has not seen.

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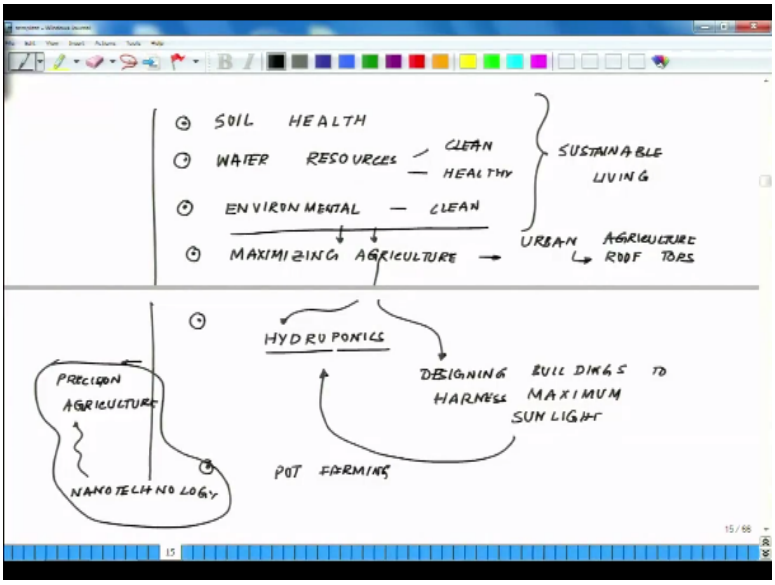

You do not know what that will happen right. So if we play a judiciously then optimal use of chemicals so I mention here having shorter very short life of this chemicals, we could emulate nature and we all looking forward to is soil health has to be maintained through this water resources, clean healthy water resources, third we have environmental in terms of clean environment.

All these 3 things and will lead to a sustainable living and when you talk about clean environment I will add one more point maximizing agriculture, in terms of say taking the liberty of using this word urban agriculture where we are using the rooftops for agriculture, then maximizing agriculture it by using hydroponics, hydro means water, ponics means plant growing plants in water bodies.

Then designing the buildings in order to harvest maximum sunlight, so as to grow as much crop you can afford then more of the pot farming, small scale forming where you are controlling several parameters and you are supporting to sustainable living and all these things are eventually is part of that precision agriculture where nanotechnology can play a very big role.

So as we will walk through this course you realize that these are the key points where our discussion will continuously have round, how we can maximize our productivity yet not destroying the soil, not contaminating the water resources and yet keeping environment clean and yet on the country maximizing the agriculture. So with this I will be closing for the first

week and in the next week we will talk about the nanotechnology, the basics of nanotechnology, synthesis, formulations, characterisation and evaluation method, thank you.