Organic Farming for Sustainable Agricultural Production

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Lecture - 06
SWOT Analysis of Organic Farming

So, I welcome you for the class; the second week for the subject Organic Farming for Sustainable Agricultural Productions. So, the lecture number 6 here, we will discuss about the SWOT Analysis of Organic Farming and the next lecture, we will be concentrating on sustainable agriculture.

So, SWOT analysis for organic farming here, we will be explaining what is the strength weakness opportunities and threats involved in organic farming.

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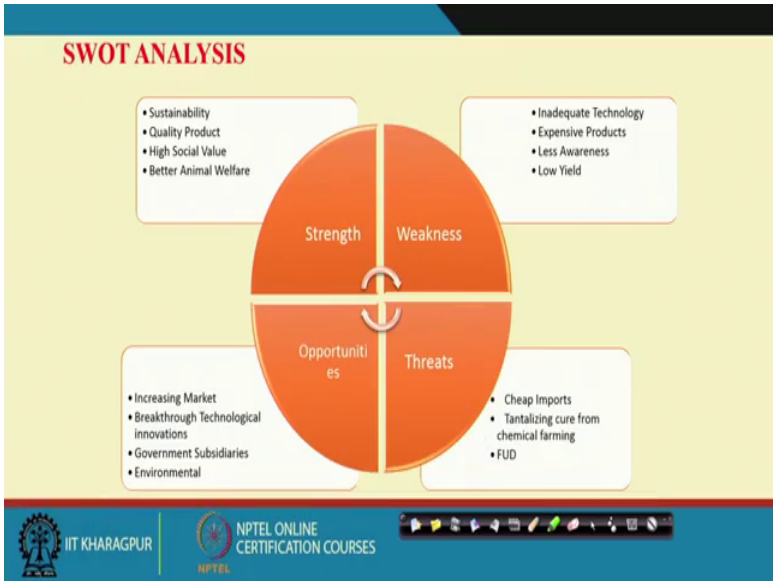

So, if you go for this strength, see the strength is the sustainability, quality products, high social value, better animal welfare. So, these are the strength, weakness, inadequate technology, expensive product less awareness among the farmers low yield.

The strength and weakness are the internal factors, these opportunities and threats, these are the external factors, the opportunities are increasing market, breakthrough technological innovation, government subsidy and environmental sustainability. So, if we look at the weakness the opportunities take care of the weakness; weakness can be

converted toward the opportunity in threat, cheap imports, tantalizing cure from chemical farming and the FUD that is Fear, Uncertainty and Doubt in organic farming.

So, this analysis is required to basic concepts basic understanding how we are moving forward organic production.

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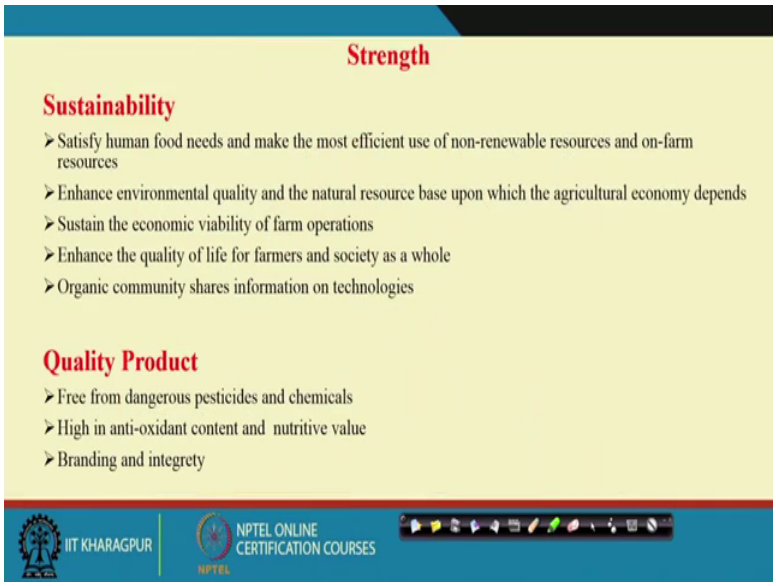

So, we will discuss about the strength means your sustainability we will discuss detail in the later lecture, but in a brief the sustainability the, satisfy human need and make the most efficient use of non-renewable resources and on farm resources. So, as you discussed the organic farming concepts for the sustainability we need to use on-farm biological resources and crop the residue recycling for building soil fertility that is through organic farming.

And second is enhance environmental quality and natural resource base upon which the agricultural economy depend. So, we have to because organic farming that leads a better environmental quality. So, it is a less emission of greenhouse gases the atmosphere and less pollutions to the air and also the ground water. So, that way that maintains a better environmental quality.

Then sustain the economic viability of farm resources. So, through organic farming as you discussed as the strength. So, this should be economically profitable and the

economic the viability of the farm operations. So, any if the farmers, they will interested, if they get the return at the good returns of their produce.

Then enhance the quality of life of farmers and society as a whole so because this is a eco friendly agriculture. So, this is a better quality of life the farmers and the society as a whole organic community shares information; so, informations on technologies. So, this is a good thing to organic community they do make a group. So, in that group so, there is the proper determination of the technological informations among the farming communities in organic farmers.

This is the sustainability the strength and quality of the products. So, this is one of the strength of organic farming say we get the products are free from any insecticides and the pesticides and this contains high antioxidants and also that was the high nutritive value of organic products and as you discussed earlier classes because of the nutrients because organic products because organic nutrients organic fertilizers.

They contains many nutrients they including macro and micronutrients at the same time the application schedules and the release part on the soil that makes the higher content of polyphenols in the food products. So, that makes the rich in the quality of the products in terms of secondary metabolites.

Then branding and integrity that is one of the component of the organic farming organic products are the branded and the integrity of these producers also; that is a very importance of strength. So, it is a branding integrity and transparency. So, that is where the strength of the organic farming.

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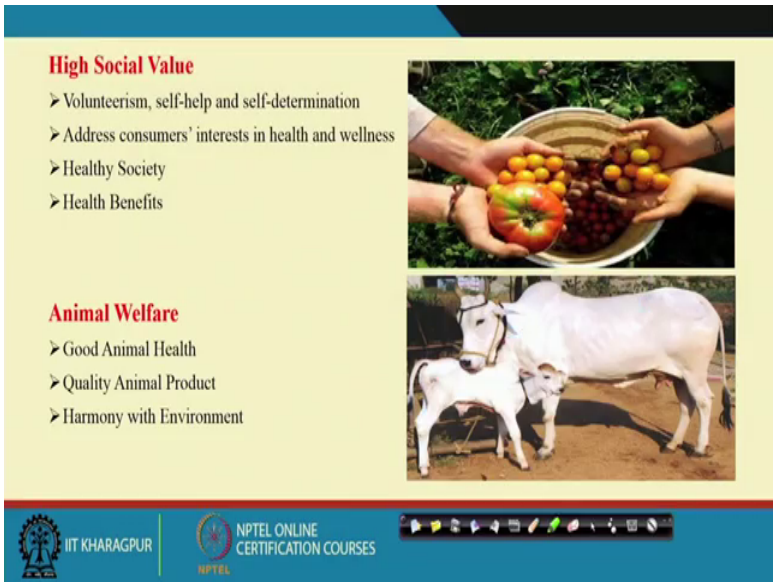

And the other strength are high social value the as you are discussing the volunteerism self help and self determinations the organic farmers are self motivated we can say motivated and the remaining the groups the community. So, that is one of the good aspects of the organic farming and the address consumer's interests in health and wellness.

So, are the produce of organics are the better quality high need to the value. So, it leads to a better health and the welfares of the human beings then healthy society of course, then the health benefits because organic farmings. So, the products of good quality and environments we can say clean environments less pollutions either air pollution or water pollutions is minimum.

So, to live a healthy environments and the healthy foods. And animal welfares as animals are the integral part of organic farming so, this is a good animal welfare is good animal health quality, animal products, harmony with the environment. So, as we are having the cows in organic farming systems because I discussed earlier classes so, different the products from the cow you are using the cow urine, cow milk, cow ghee. So, these are combine and these are combine cow dung.

So, these are combined and in organic farming to produce different fertilizers and pesticides and if you take a system as a whole as bring cow as a integral part of organic farming. So, whole system as a organic integrated farming system concepts. So, that is

the harmony with environment we are living with nature, we are living the harmony with the environment that is one of the strength or integral components of organic farming.

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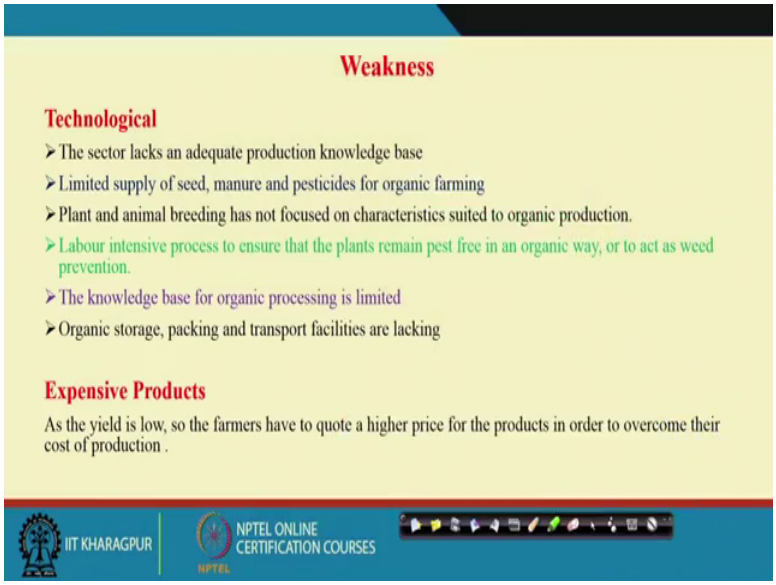

So, these are the strength of organic farming if you come to weakness of organic farming. So, the weakness are the technological weakness what you see the organic farming the organic production is a emerging state in India. So, in view of this the sector lacks an adequate production knowledge base.

So, we need to go further we need to work very hard because most of the research information and research is required to strengthen organic farming; that means, the we are lacking in production knowledge base for organic farming limited supply of seeds manures and pesticides for organic farming because you see. So, if you go for the organic standards the production standards. So, it is better to have seeds of organic origin the seed materials; so, in addition to inputs.

So, the availability of good quality seeds even for conventional farming is a question. So, now, we think about dunning farming. So, it is that is a limited supply or you can say no supply of the seeds especially seeds for the organic farmer also. So, that is; so, this is so, this bring some type of opportunity for the institutes and the research organizations to jump forwards and to take a detailed research in depth research how to bridge the gap, how to meet the requirement of the organic farmers and how to take the organic farmers way forward.

Then plant an animal breeding has not focused on characteristics suited for the organic productions because you know the breeding technique. So, that can suit the; that can be compatible the organic farming practices that has to come up. So, as we see because many of the crops you can say like the cereal crops they have a very less response to organic input managements.

So, in that context; so, we need to have a proper breeding technology. So, that we can get a better response of the crops from the organic input management and next is a labor intensive process organic farming because say if you go for the we are not using any chemical insecticides and pesticides, we go for the suppose pest control or the weed control either manually or mechanical means or use some organic methods.

So, in that way, it takes some time to usually to protect the crops from the pests and diseases and the knowledge base of for organic processing is also limited. So, productions and processing this should be linked when you brand a product as organic not only in productions. So, in the storage, transportation and process in postharvest processing those should be as organic. So, that of knowledge base for the organic processing that is also limited.

Organic storage packing and transfer facilities also are lacking. So, these are the weakness technological weakness in a organic farming. So, this so, that means, there is a good scope to how to bridge the gap how to come forwards. So, that there will be rapid expansion of the organic production or the organic farm area.

And the next weakness is the expensive products of course, the as the yield is low. So, low we can say the lower than the chemical fertilizers somehow; we can in some cases, we will able to maintain the yield as of the chemical fertilizer to the farmers; they have to quote the higher price for their product in order to compensate their the cost of production. So, this is one of the weakness of the organic farming.

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And as the other weakness is less awareness among the farmers because there is a lack of research and extension support for organic farmers moreover, it is very difficult for a traditional farmers to adapt and learn the technology and practice of organic farming and the process of transition also can take time.

The transition phase are 24 months and the organic the 12 months. So, for a traditional farmers to get the knowledge he has to be properly trained or from the well trained organic farmers or from the research institutions to have to spread the awareness among the farming communities about the organic for organic productions.

And the low yield as we have discussing because of the low yield as compared to conventional farming the high cost for unit productions and immature market. So, that is one of the weakness because no immature market, I can say in the sense on even market. So, the farmers has to get their premium price for this organic produce they have to get the higher; because of the low productions less than productions they should compensated with the economy that high price.

So, this is a market growth that says somehow with farmers will be take interest if there is a good market and the people should be interested to pay the premium price for this organic produce. So, these are the some of the weakness, but; however, we can say the farmers are quite interested now farmers are getting awareness the in general they want to go for the organics, but at the same time; they it is very essential.

But I can say very important for us to see that they are the production the yield level is protected because we cannot satisfy we cannot we cannot sacrifice the yield in the of the quality yield has to be maintained at the same time the quality improvement is necessary.

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So, there are opportunity as you discuss. So, looking at the weakness; so, weakness gives opportunity for the organic farming. So, there is a increasing market. So, there is a great opportunity for the organic food market in India and the world as a whole that we have discussed is a booming market the organic market is growing. So, that is organic farming is one of the fastest growing segments in agricultural sector I say. So, this is because of the increasing health awareness and increasing concerns towards adverse effect of chemical farming and environment and health.

So, that gives a market did that brings the market demand for organic product is very strong because now I can see as we have discussing the previous class also because of the chemical farming, there may be several reasons, but the your health is mostly regulated by it work 4 you take regularly.

So, food the controls your health because most of the foods we see now because of the chemical high use of chemical fertilizer and especially chemically pesticides. So, those causes many type of business like your cancer stomach related problems. So, to so, the farmers are getting the local consumers are awareness among the consumers are increasing. So, that brings a great demand for organic force.

More entrepreneurs they are also entering in the field, you can of the many farms you need the many educated youths, there may be some different backgrounds they are also entering to agricultural field and many company you can say I can say Reliance or the Tata; there are also entering to agricultural field to have a better quality of produce, organic produce.

Then there is an emerging pattern of social consciousness among the consumer as you are discussing the consumer is focusing more on the procurement of locally grown food and associate locals with organic. So, they do believe transparency so, that is say if there is easily accessibles local organic market and local organic foods, they are also more interested.

Then the public sentiment against genetically modified crops so that is one of the debate whether say because whether we can use for the GM crops or no is inorganic farming the GM crops are not allowed. So, that means, the health professionals and the environmental groups they are in support of the organic principles and practices and the organic sector is well suited to marketing system that allows direct producer to consumer contact. So, that is what we say so, you go for the organic farming.

So, the producer and consumer contact and many aspects, I have discussed why there is a market there is a market because now we do not want GM foods; GM foods are not allowed. So, there is a debate say GM food can increase the production to meet the need of the food demand we have to increase the production. So, you have to go for the GM food. So, because we do not know scientifically is yet to be whether that can how the health is affected due to GM foods.

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So, in organic farming; so, we do not GM foods use a GM foods is not allowed and like any chemical fertilizers and pesticides. So, there is opportunity for this the market then you can have the breakthrough technological innovation.

So, because we need the more and more research that is the opportunity for the detail in depth research in organic farming the producer lack of organic inputs such as satisfied organic seeds and transplants plant and animal breeds appropriate for organic production. So, those the seed materials input materials are not available to the organic farmer.

So, it needs to be taken into a considerations. So, many of the research input should be diverse are to be focused for the organic productions; how we can provide the seeds or the input materials timely to the farmers and there should be of organic origins.

Then bridge the gap of time effectiveness between the convectionals and the organic farming as you say sometimes the organic farming takes some time suppose you go for the pest control because if you use chemical it is a very quick effect right. So, that can control the pest very quickly but in organic farming.

So, we can reduce the time, we will discuss in the organic go for the input management; how the time effectiveness can be maintained the organic framings; as compare to the chemical farming how it can be quicker actions how we can control the pest and diseases

very quickly and we can take care the crops in organic farming systems the pest, diseases and weeds.

Then as you discuss in depth research is necessary because we are lacking we are in the primitive stages of the research and organic farmings we need to have research on inputs and product development. So specially for the we can vermicompost or organic fertilizers.

So, you need to have a more and more research. So, that the inputs can be used in the for the organic production productions and in terms of evaluation efficiency how efficiently the input can be how the; that means, the crop response to input applications how we can increase the response of the crops to input applications; that means, a input use efficiency; that means, a nutrient release pattern in the after application soils handlings and how we can enhance the crop productions as we see in the chemical fertilizer.

So, that is a in depth research needs in a product development and what now we can see the vermicompost, there are many types of vermicomposts are coming normal vermicompost, enriched vermicompost; vermicompst can suit or can meet the requirement of specific group of crops suppose a crop needs high amount of phosphorus, we need to have vermicompost or bio fertilizer that is rich in phosphorus.

Similarly, how we can maintain the nutrient per long term in their products like you have many country they are coming at the granulation of vermicompost. So, that the nutrient can remain intact and when you are applying the field the huge efficiency available to the crops also can be better for the longer term.

So, this type of research in organic farming how you can increase the efficiency of the inputs through the crop production that type of research has to come up in large scale. Then the reduced cost of production, once we increase the efficiency of inputs technically, we can apply less inputs and we have the same production of the higher productions that we can minimize the production cost.

Then conversion of waste lands or the barren lands to organic farming system because you know many lands because of the soil erosion; lands becoming waste lands. So, waste lands we need to convert to organic initially as a through perennial crops using organic way the waste lands can be converted to organic farming system, then another

opportunity government subsidy. So, the better government coherent policy government should provide some type of incentives to organic farmers. So, that the more and more farmers can come under organic farming, they can they can convert their land to organic farming.

Then increase in government that is a subsidy for the organic farming. So, that the farmers can be interested this was this happened in Europe because initially the when there is there is a policy induced organic market because see the government from government side, they did they proposed the floated scheme where the farmers those who are converting to organic they are giving some incentive.

So, similar type of some type of policy has to come. So, that the more and more farmers they can come under organic farming.

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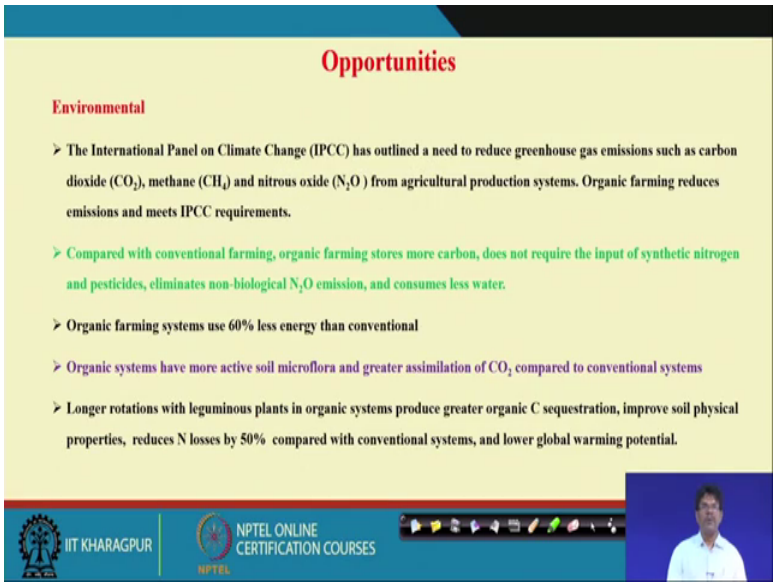

And the other opportunity for organic farming is the environmental opportunity the biggest opportunity where there is a opportunity for organic farming are you see the IPCC International Panel on Climate Change. So, that was outlined the need to reduce greenhouse gas emission such as carbon dioxides, methane and nitrous oxide from the agricultural production systems and to do that one organic farming is the right, because through organic farming we can minimize the emission of all the greenhouse gas at atmosphere.

So, as compared to the chemical farming compared to the conventional farming, the organic farming stores more carbon. So, that increases the carbon sequestration in the soil and it does not require the input of synthetic nitrogen and pesticides that way eliminate the non biological nitrous oxides emission and consumes less water because no in case of the chemical farming the nitrogen.

So, that is converted to nitrous oxide due to yield management practice especially in the rice crops you can see and this nitrous oxide due to improper water managements. So, that get reduced to and that comes to the atmosphere release those atmosphere and nitrous oxide has higher global warming potential around 300 times global warming potential as compared to carbon dioxide.

So, in case of the organic farming, we do not use the synthetic nutrient fertilizers. So, there is no the quicker realize of nitrogen from the biological materials. So, there is the nutrient realized as per the need of the crops; that means, the synchrony the requirement of the crops. So, there is a less loss and less emission of the greenhouse gases at atmosphere. So, organic farming is a key indicator key candidate, we can say for minimizing there are greenhouse gas emissions and protecting the environments.

Then organic farming system uses 60 percent of for less energy than conventional as you see because no. So, there is we are using only on-farming foods, we do not depend upon synthetic fertilizers or the pesticides that way and also organic farming requires less water because of the high carbons that increases water holding capacity of the soils. So, in that way organic farming minimizes the energy use as compared to your chemical farming.

Next the organic systems have more active soil micro flora and greater assimilation of carbon dioxide compared to conventional systems. So, as you say because of the organic farming. So, there is increased population of microbes and so, because microbes more micro flora. So, greater assimilation of carbon dioxide compared to conventional systems that increases the carbon sequestration in the soils.

So, that also increases the soil fertility in the long term; that is why the organic farming as you say are the candidate for the sustainable agricultural productions and from the environmental point of view that is a right candidate to minimize environmental

pollutions and to make a healthy environments in addition to a healthy foods for the human being.

Then the longer rotation with legumes, if in organic farming with the legume crops in rotations longer rotations with legumes plants in organic system produce greater organic carbon sequestration, improve soil physical properties, reduce a nitrogen loss by 50 percent compared conventional systems and lower global warming potential there is what we are discussing because if go for organic farming and you have using legumes in a rotations, they fix atmosphere atmospheric nitrogen.

So, that way we can minimize the use of synthetic fertilizers and that that is through biological nitrogen fixations the neutral soil fertility and by a neutral soil fertility that minimize a the specially nitrogen fertilizers used and we can minimize the nitrous oxide emissions to the atmosphere and moreover through this biological n fixation that is the sequestration of carbon as organic farming also we go for the conservation tillage or the (Refer Time: 26:15) tillage.

So, that carbon sequestration we go for the building of the soil fertility in that way, we can reduce the n loss by 50 n loss is reduced because of reduced and also global warming potential less emission of greenhouse gases. So, there is a less global warming potential due to organic farming.

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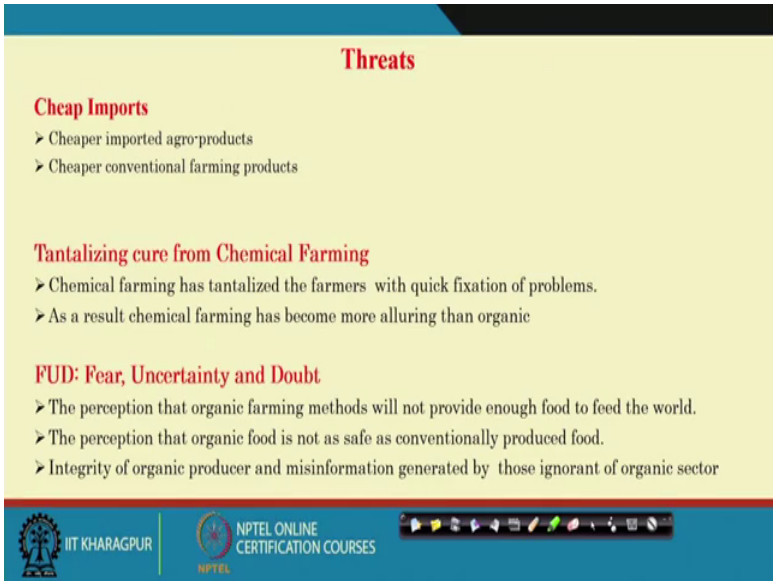

Then what are the threats in organic farming. So, the strength, weakness, opportunity, threat opportunity, external factor that we can take the opportunity do that one and threat means the (Refer Time: 26:49) components this is cheap imports we are getting the cheap import of agro products the cheaper conventional farming product they do compete. So, usually the consumers they have some basinets to have the produce of the less price.

So, they do not mind of they do not see their health at the time of when they are they are spending money from their pockets. So, that is one of the reasons why I said threat somehow, but we can say that is especially organic farming may not get into threat, but we should keep mind they are maybe some threat, if we want to bring the production level same as chemical farming and it can minimize the cost of production through organic farming and hopefully that can get a good market. So, this is say the threat from the cheaper convectional product may not may not be so much applicable here.

Then next is tantalizing cure from chemical farming are you say chemical farming have the tantalized farmers with quick fixation are problems because if there is a pest attack or the disease attack or woods problem. So, farmers usually they know that the, they are applying only at the chemical pesticides or the chemical herbicides and they do get a quicker response. So, that is what are the, that creates a maybe that is one of the threat for the organic farming.

So, as a result chemical farming has become more alluring than the organic because of the quicker actions, but not a, but in spite of all this never the less organic farming is gaining popularity and it now with the awareness among the farming community is increasing to have the organic products.

So, the other is the fear the part that is the fear uncertainty and doubt. So, as you say this is one of the threat we can say to organic farming the fear means the perception that organic farming methods will not provide enough food to feed the world. So, this is how we the threat this we can take care if there is a technological interventions that is say breakthrough technical innovation I will discussing. So, we should have the innovative technology.

So, this type of the threat among the framing community should be not there if your come technology now organic farming can have the same productions they can produce

the same amount as of the chemical farming that can be possible through research in organic farming how the input management, input productions, the product development you can have.

So, that we can have a better efficiency of products while they applied in the crops and the crops specific products not that all the compost you can see all the chemical farming you are applying the rice, urea works better and if you go for potato urea does not work better for potato people use the calcium ammonium nitrate when the fertilizer of the nitrate fertilizer was better for the potato.

Similarly, in organic farming; so, we can compensate you can come out and we can meet the requirement of the productions by technological innovations by breakthrough technology; so, coming out the products. So, that can give same yield as of the chemical farming.

Then the uncertainty or you say uncertainty means the perception that organic farming food is not as safe as conventionally produced food; that is one of the because comes because this is sometimes with the transparency or believe transfer living, they organic sometimes you know organic food may not be good because we have seen from research organic food definitely higher qualitative as compared to chemically fruits.

In terms of the less pesticide residue and in terms of the nutritive value as the secondary metabolites and the last one doubt means the integrity the integrity of organic producers and the misinformation generated by those of ignorant organic producer or organic producer or the organic sector. So, this type of the doubt about the organic products the integrity of the organic producers and the misinformation generated by those ignorant organic producer that has to be taken care.

So, these are the some of the threats bought in general I can say organic farming may not face n type of threats we if you have come out weakness if you tackled weakness if you come out the technological innovations breakthrough technology good innovations and we can meet the requirement of the organic farmers, we can supply the seeds inputs the quality inputs organic farmers, we can meet the production demands, we can have the productions as good or the chemical fertilizer in addition to the quality improvement.

So, this is about in brief; the SWOT analysis the strength weakness opportunity and threat in organic farming and this gives give the analysis of the organic farming.

Thank you very much.