Content from https://agritech.tnau.ac.in/org_farm/orgfarm_crop_rotation.html:

ORGANIC FARMING :: Home

Organic Farming :: Organic Inputs and Techniques

Crop Rotation

Non leguminous crops should be followed by leguminous crops and vice-versa, eg. green gram wheat / maize. If preceding crops are legume or non-legume grown as intercrops or mixed crops, the succeeding crop may be legume or non legume or both.

Restorative crops should be followed by exhaustive or non-restorative crops.eg. seasame cowpea / green gram / blackgram / groundnut.

Leaf shedding crop should be followed by non-leaf shedding or less exhaustive crops.eg. pulses / cotton wheat / rice.

Green manuring crop should be followed by grain crops.eg. dhaincha - rice, green gram/ cowpea wheat / maize.

Highly fertilized crops should be followed by non-fertilised crop.eg. maize - black gram/gourds.

Perennial or long duration crops should be followed by seasonal /restorative crops. eg. napier / sugarcane - groundnut /cowpea /green gram.

Fodder crops should be followed by field or vegetable crops. eg. maize + cowpea-wheat/potato/cabbage/onion.

Multicut crops should be succeeded by the seed crops. eg. green gram/maize.

Ratoon crops should be followed by deep rooted restorative crops. eg. sugarcane/jowar-pigeonpea/Lucerne/cowpea.

Fouling crops should be followed by cleaning crops.eg. jowar /maize potato/ groundnut.

Cleaning crops should be followed by nursery crops. eg. potato/ colocasia/ turmeric / beet/

carrot-rice nursery/ onion nursery/ tobacco nursery/ vegetable nursery.

Deep rooted crops should be succeeded by shallow rooted crops. eg. cotton/ castor/ pigeonpea potato / lentil /green gram etc.

Deep tillage crops should be followed by zero or minimal tillage crops. eg. potato / radish / sweet potato/sugarcane - black gram/green gram/green manuring crops.

Dicot crops should be followed by monocot crops. eg, potato / mustard / groundnut / pulses rice / wheat / sugarcane / jowar or dicot + Monocot crops should be followed by dicot + monocot or either dicot or monocot crops.

Stiff stubble leaving crops should be followed by minimum intercultivation requiring crops. eg. sugarcane / sorghum/cotton /pigeonpea- fodder crops.

The crops of wet (anaerobic) soil should be followed by the crops of dry (aerobic). eg. rice-Bengal gram/Lathyrus/pulses/oilseeds. The tendency to buildup difficult-to-control weeds becomes less in such rotation than in continuous wet land rice culture.

The crops that are susceptible to soil-borne pests and pathogens should be followed by tolerant / break / trap crops. eg. sugarcane-marigold for pathogenic nematodes, tomato / brinjal / tobacco / potato-rice / pulses for Orobanche, jowar-castor for Striga and berseem-oats for Cuscuta.

The crops with problematic weeds (weeds that are difficult to distinguish at any one stage of crop, may be seedling or seed stage) should be followed by cleaning crops / multicut crops / other dissimilar crops or varieties. eg. wheat-wet rice forPhalaris minor, berseem-potato / boro rice forCichorium intybus, mustard early potato for Cleome viscose, rice-jute /sugarcane / vegetable/ maize + cowpea forEchinochloa crusgalli, jute- multicut fooder / vegetable orCorchorus acutangulus.

Pasture crops should be followed by fodder or seed crop. eg. para grass maize + cowpea / cowpea / rice bean / tetrakalai for seed.

Silage / hay / cleaning crops should be followed by seed crops. eg. maize / groundnut - onion, cowpea / jowar for seed crops.

Crops with the same symbiotic / associated microbes should be followed by common host crops,

such as,

Rhizobium melilote - lucerna, sweet clover, fenugreek

R. trifolli - berseem, Persian clover

R. leguminosorum - peas, lentil, Lathyrus

R. phaseoli - beans, green gram, pillipesara, black gram

R. lupine - Lupines

R. japonicum - cowpea, pigeonpea, guar, sunhemp, Bengal gram, soybean, kudzu

The rotational use of crop varieties, and cultural practices in addition to rotational cropping provides more and assured benefits than that of adopting only crops or land rotation.

==========

Content from https://agritech.tnau.ac.in/org_farm/orgfarm_of%20vs%20con%20fasrming.html:

ORGANIC FARMING :: Conventional Vs Organic Farming

Organic Farming :: Organic Farming Practices

Organic Farming Vs Conventional Farming

Organic and conventional agriculture belonged to two different paradigms. The fundamental difference between the two competing agricultural paradigms as follows

Conventional Farming

Organic Farming

Centralization

Decentralization

Dependence

Independence

Competition

Community

Domination of nature

Harmony with nature

Specialisation

Diversity

Exploitation

Restraint

In contrast, several agro-ecologically based researchers stress more the fluid transition between conventional, integrated and organic farming, as an outcome of different assessments of economic, ecological and social goals. Consequently, technique strategies such as integrated pest management of balanced nutrient supply might improve conventional agriculture to such as an extent that it may appear unnecessary to strictly ban pesticides and mineral fertilizers as required by organic standards.

However, there is scientific that organic agriculture differs from conventional agriculture not only gradually but fundamentally. Implementing organic methods consequently seems to provide a new quality in how the agro-ecosystem works. This functioning cannot be explained by summing up single ecological measures. Organic farming seems to improve soil fertility in a way and to an extent which cannot be achieved by conventional farming even if the later consistently respects some ecologically principles.

Organic agriculture is one of several to sustainable agriculture and many of the techniques used (e.g. inter-cropping, rotation of crops, double digging,, mulching, integration of crops and livestock) are practiced under various agricultural systems. What makes organic agriculture unique, as regulated under various laws and certification programmes, is that:

1) almost all synthetic inputs are prohibited and 2) Soil building crop rotations are mandated.

The basic rules of organic production are that natural inputs are approved and synthetic

inputs are prohibited, but there are exceptions in both cases.

Certain natural inputs determined by the various certification programmes to be harmful to human health or the environment are prohibited (e.g. arsenic). As well, certain synthetic inputs determined to be essential and consistent with organic farming philosophy, are allowed (e.g. insect pheromones). Lists of specific approved synthetic inputs and prohibited natural inputs are maintained by all the certification programmes and such a list is under negotiation in codex. Many certification programmes require additional environmental protection measures in adoption to these two requirements. While many farmers in the developing world do not use synthetic inputs, this alone is not sufficient to classify their operations as organic.

Modern Farming

Today's chemical farms have little use for the skilled husbandry which was once the guiding principle of working the land. The emphasis today is solely on productivity - high input in exchange for high returns and productivity (mostly diminishing now however for farmers worldwide). Four important considerations - what happens to the land, the food it produces, the people who eat it and the communities which lose out - are overlooked.

Land exhaustion

The constant use of artificial fertilizer, together with a lack of crop rotation, reduces the soil's fertility year by year.

Fertilizers

High yield levels are produced by applying large quantities of artificial fertilizers, instead of by maintaining the natural fertility of the soil.

Nitrate run-off

About half of the nitrate in the artificial fertilizer used on crops is dissolved by rain. The dissolved nitrate runs off the fields to contaminate water courses.

Soil erosion

Where repeated deep ploughing is used to turn over the ground, heavy rains can carry away the topsoil and leave the ground useless for cultivation.

Soil compaction

Damage to the structure of soil by compression is a serious problem in areas that are intensively farmed. Conventional tillage may involve a tractor passing over the land six or seven times, and the wheelings can cover up to 90 per cent of a field. Even a single tractor pass can compress the surface enough to reduce the porosity of the soil by 70 per cent, increasing surface run-off and, therefore, water erosion. In the worst cases, the surface run-off may approach 100 percent - none of the water penetrates the surface

Agricultural fuel

As crop yields grow, so does the amount of fuel needed to produce them. European farmers now use an average of 12 tons of fuel to farm a square kilometre of land; American farmers use about 5 tons (1987 figures).

Biocide sprays

The only controls used against weeds and pests are chemical ones. Most crops receive many

doses of different chemicals before they are harvested.

Cruelty to animals

On most "modern" farms, all animals are crowded together indoors. Complex systems of machinery are needed to feed them, while constant medication is needed to prevent disease. The cruelty involved in managing, breeding, growing and slaughtering farm animals today is unimaginably repulsive and horrifying.

Animal slurry

With so many animals packed together in indoor pens, their manure accumulates at great speed. It is often poured into lagoons which leak into local watercourses, contaminating them with disease-causing organisms and contributing to algae-blooms.

Imported animal feed

Many farms are not self-sufficient in animal feed; instead they rely on feed brought into the farm. This often comes from countries which can ill afford to part with it.

Stubble burning

In countries where stubble is burned, large amounts of potentially useful organic matter disappear into the sky in clouds of polluting smoke

Loss of cultivated biodiversity

Large and other chemical farms tend to be monocultures growing the same crop and crop variety

Threat to indigenous seeds and animal breeds and species

Native cultivars and animal breeds lose out to exotic species and hybrids. Many native animal breeds are today threatened with extinction. The same holds true for many indigenous plant varieties which have disappeared within the space of one generation.

Habitat destruction

Agribusiness farming demands that anything which stands in the way of crop production is uprooted and destroyed. The wild animals and plants which were once a common sight around farms are deprived of their natural habitat and die out.

Contaminated food

Food, both plant and animal products, leaves the farm contaminated with the chemicals that were used to produce it.

Destruction of traditional knowledge systems and traditions

Rural indigenous knowledge and traditions, both agricultural and non-agricultural, is invariably connected to agriculture and agricultural systems.

Control of agriculture inputs and food distribution channel

The supply and trading in agricultural inputs and produce is in the hands of a few large

corporations. This threatens food security, reducing the leverage and importance of the first and the last part of the supply chain - the farmer and the consumer.

Threat to individual farmers

Chemical agriculture is a threat to their livelihoods and changes their lifestyles, unfortunately not for the better.

Source:

www.localfoodworks.org

==========

Content from https://agritech.tnau.ac.in/org_farm/orgfarm_successful%20organic%20transition.html:

ORGANIC FARMING :: Steps to a Successful Organic Transition

Organic Farming :: Organic Farming Practices

Steps to a Successful Organic Transition

The transition from conventional to organic farming requires numerous changes. One of the biggest changes is in the mindset of the farmer. Conventional approaches often involve the use of quick-fix remedies that, unfortunately, rarely address the cause of the problem. Transitioning farmers generally spend too much time worrying about replacing synthetic input with allowable organic product instead of considering management practices based on preventative strategies. Here are a few steps new entrants should follow when making the transition to organic farming:

A) Understand the basics of organic agriculture and the organic farming standards

Since organic production systems are knowledge based, new entrants and transitional producers must become familiar with sound and sustainable agricultural practices. Transitional producers should be prepared to read appropriate information, conduct their own trials and participate in formal and informal training events.

As mentioned, switching from conventional to organic farming is more than substituting synthetic materials to organic allowed materials. Organic farming is a holistic system that relies on sound practices focused on preventative strategies. Since there are often few organic remedies available to organic producers for certain problems, prevention is the key element in organic production.

B) Identify resources that will help you

Existing organic farmers are generally very helpful in sharing valuable technical information. A good mentor should be able to provide transitional producers with knowledge, practical experience and suggest appropriate reading materials. Mentors are able to identify some of the most important challenges transitional farmers will be confronted with. Mentors may also help source production materials that are otherwise difficult to find. Producers should also contact agrologists, veterinarians and other agricultural and financial consultants, in order to learn ways to improve their current farming practices.

The Internet is a valuable source of information, especially to new organic farmers. A broad range of reading materials are available from many organic/ecological organizations such as the Organic Agriculture Centre of Canada (OACC), the Atlantic Canadian Organic Regional Network (ACORN), the Canadian Organic Growers (COG), the Certified Organic Associations of British Columbia (COABC), the National Sustainable Agriculture Information Services/Appropriate Technology Transfer for Rural Areas (ATTRA), the Sustainable Agriculture Research and Education (SARE), and the Agri-rseau/agriculture biologique- Quebec. Consider joining an organic organization or network to access these valuable resources and establish good working contacts.

C) Plan your transition carefully

Develop a transitional plan with clear and realistic goals. The plan should clearly identify various steps to be taken in making the transition to organic and be sure to include realistic timeframes. Identify your strengths and weaknesses. Consider ways to address any weaknesses, while building on strengths. The business side of the transitional plan should contain a multiple year budget and an effective/realistic marketing strategy. Make sure your list of expenses is

comprehensive. Include all prerequisites to begin the transition; such as, mechanical weeding equipment, specialized composting equipment and applicators, additional handling equipment dedicated to the organic products, and processing equipment. Although the demand for organic products is continually growing, growers need to make sure they have a reliable market for the organic products they plan to produce.

Careful planning is very important. During the early part of the transitional period, yields are often depressed and premium prices for certified organic products are generally not yet obtainable. Use realistic yields and prices when evaluating the feasibility of your project.

In some instances, it is preferable to continue using conventional measures early on in the transitional process in order to avoid dramatic yield reduction which could jeopardize the financial well-being of the operation.

Farmers who are planning to convert their livestock operation should consider certifying their fields first. This allows time to learn more about organic livestock management requirements while, at the same time, starting to produce organic feeds.

Although organic certifiers generally want to see the entire farm become organic, certifiers generally allow new entrants several years of transition time before the whole farm is fully certified.

Parallel production is the simultaneous production, processing or handling of organic and nonorganic crops, livestock and other products of a similar nature. Although this type of activity is highly discouraged by certifiers, some allow it, especially during the transition period. If permitted to practice parallel production, producers must be prepared to deal with significant record keeping in order to ensure traceability and organic integrity.

D) Understand your soils and ways to improve them

Since soil is the heart of the organic farming system, it is crucial that new entrants understand the various characteristics and limitations of the soils found on their farm. Soil suitability may vary significantly from one field to the next. Fields with good drainage, good level of fertility and organic matter, adequate pH, biological health, high legume content, and with less weed and pest pressure, are excellent assets. Often these fields are the first ones ready for transition and certification.

Many tools exist to assess soils. Soil chemical, physical and biological analyses, soil survey and legume composition field assessments, and field yield histories are very important and should be considered early in the transition. Unhealthy soils require particular attention.

If farmers plan to grow crops without raising any livestock, it may be necessary for them to source allowable soil amendments such as composted manure, limestone, rock dust, and supplementary sources of nitrogen, phosphorus, potassium and micro-nutrients. Even with the best of crop rotations that include green manure crops like legumes (nitrogen fixing crops), transitional growers will be challenged if they want to obtain optimal yields without additional livestock manure, compost and/or other off-farm soil inputs. When these inputs are scarce or expensive, producers may benefit from integrating livestock on their farm.

Lets not forget, under organic production, farmers must be able to recycle nutrients through proper nutrient management practices: recycling through good manure and compost utilization, crop rotations, cover crops (green manure, catch, and nitrogen fixing crops), and by reducing nutrient losses due to leaching, over-fertilization, as well as poor manure and compost management (storage, handling, and spreading).

E) Identify the crops or livestock suited for your situation

Before growing a crop or raising any livestock, consider the following: degree of difficulty to grow or raise the product organically, land and soil suitability, climate suitability, level of demand for the product, marketing challenges, capital required, current prices for conventional, transitional and organic products, and profitability over additional workload.

F) Design good crop rotations

Once the crops are chosen, carefully plan the crop rotation(s) and select the most suitable cover crops (green manure, winter cover crops, catch crops, smother crops, etc.). Crop rotations are extremely important management tools in organic farming. They can interrupt pest life cycles, suppress weeds, provide and recycle fertility, and improve soil structure and tilth. Some rotational crops may also be cash crops, generating supplemental income.

On some farms, land base availability may be a limiting factor when planning your crop

rotations. The transitional plan should, therefore, include crop rotation strategies. Responding to external forces such as new market opportunities may also have a significant impact on crop rotations, so farmers need to consider the effect that growing new crops has on their crop rotations and land base availability.

G) Identify pest challenges and methods of control

It is important to know the crops most common pests, their life cycles and adequate control measures. For instance, Colorado potato beetle may be a pest of significant importance when growing potatoes; cucumber beetles in cucurbitaceous crops (cucumber, squash, and melons); flea beetle in many seedlings crops; clipper weevil and Tarnish Plant Bug in strawberry crops.

There are several measures available to reduce pest pressure: crop rotation, variety selection, sanitation, floating row covers, catch crops, flamers, introduction of beneficial insects, bio pesticides, and inorganic pesticides. Transitional growers should be prepared to use and experiment with some of these options. When considering a new type of production, discuss pest issues with your agrologists, IPM specialists and/or other existing organic producers to optimize your chances of success.

Availability of organic supplies has improved significantly over the past few years. New pest control products containing B.t., spinosad, kaolin clay are effective and currently available to organic growers.

It is often reported that the types of weeds found on the farm evolve with time as growers change the way they grow their crops and control their weeds. By keeping track of the weed population, growers will be able to refine their crop rotations and improve their control measures.

Under organic livestock management, cattlemen must provide attentive care that promotes health and meets the behavioral needs of various types of livestock. With good herd health practices, farmers rarely need to rely on conventional medicine. Organic cattlemen should, however, try to familiarize themselves with alternative remedies such as herbal/aroma therapies, homeopathy,and immune system promoters.

H) Be ready to conduct your own on-farm trials

Successful organic farmers continuously try new and/or innovative management practices. Practices such as cover cropping, inter-planting, and use of various soil and pest control materials need to be evaluated regularly by organic farmers. Be prepared to try new approaches.

I) Be ready to keep good records

Record keeping is one of the most important requirements to maintain organic integrity. Farmers are expected to keep detailed production, processing and marketing information. This information includes everything that enters and exits the farm. Third party, independent inspectors require farmers to present the above mentioned documentation when inspecting the farm operation. Once the record-keeping requirements are understood and the reporting procedure established, paperwork becomes routine.

J) Avoid these common mistakes

Underestimating the need for good transitional and marketing plans.

Underestimating the need to fully understand the Organic Standard. Organic producers must understand the standard in order to know what is permitted and prohibited.

Failing to think prevention. Transitional farmers should consider improving their crop rotation, soil and crop management skills, livestock management practices (feeding program, heard health program, grazing system, housing facilities, and husbandry).

==========

Content from https://agritech.tnau.ac.in/org_farm/orgfarm_basic%20steps.html:

Organic Farming :: Organic Farming Practices

Basic Steps of Organic Farming

Organic farming approach involves following five principles:

Conversion of land from conventional management to organic management

Management of the entire surrounding system to ensure biodiversity and sustainability of the system.

Crop production with the use of alternative sources of nutrients such as crop rotation, residue management, organic manures and biological inputs.

Management of weeds and pests by better management practices, physical and cultural means and by biological control system

Maintenance of live stock in tandem with organic concept and make them an integral part of the entire system

.

==========

Content from https://agritech.tnau.ac.in/org_farm/orgfarm_farming_needs.html:

ORGANIC FARMING :: Home

Organic Farming :: Organic Farming Practices

Need of organic farming

With the increase in population our compulsion would be not only to stabilize agricultural production but to increase it further in sustainable manner. The scientists have realized that the Green Revolution with high input use has reached a plateau and is now sustained with diminishing return of falling dividends. Thus, a natural balance needs to be maintained at all cost for existence of life and property. The obvious choice for that would be more relevant in the present era, when these

agrochemicals which are produced from fossil fuel and are not renewable and are diminishing in availability. It may also cost heavily on our foreign exchange in future.

The key characteristics of organic farming include

Protecting the long term fertility of soils by maintaining organic matter levels, encouraging soil biological activity, and careful mechanical intervention

Providing crop nutrients indirectly using relatively insoluble nutrient sources which are made available to the plant by the action of soil micro-organisms

Nitrogen self-sufficiency through the use of legumes and biological nitrogen fixation, as well as effective recycling of organic materials including crop residues and livestock manures

Weed, disease and pest control relying primarily on crop rotations, natural predators, diversity, organic manuring, resistant varieties and limited (preferably minimal) thermal, biological and chemical intervention

The extensive management of livestock, paying full regard to their evolutionary adaptations, behavioural needs and animal welfare issues with respect to nutrition, housing, health, breeding and rearing

Careful attention to the impact of the farming system on the wider environment and the conservation of wildlife and natural habitats

==========

Content from https://agritech.tnau.ac.in/org_farm/orgfarm_introduction.html:

ORGANIC FARMING :: Basic Steps of Organic Farming

Organic Farming :: Organic Farming Practices

What is organic farming / organic farming concept and development

What is organic farming?

Organic farming system in India is not new and is being followed from ancient time. It is a method of farming system which primarily aimed at cultivating the land and raising crops in such a way, as to keep the soil alive and in good health by use of organic wastes (crop, animal and farm wastes, aquatic wastes) and other biological materials along with beneficial microbes (biofertilizers) to release nutrients to crops for increased sustainable production in an eco friendly pollution free environment.

As per the definition of the United States Department of Agriculture (USDA) study team on organic farming organic farming is a system which avoids or largely excludes the use of synthetic inputs (such as fertilizers, pesticides, hormones, feed additives etc) and to the maximum extent feasible

rely upon crop rotations, crop residues, animal manures, off-farm organic waste, mineral grade rock additives and biological system of nutrient mobilization and plant protection.

FAO suggested that Organic agriculture is a unique production management system which promotes and enhances agro-ecosystem health, including biodiversity, biological cycles and soil biological activity, and this is accomplished by using on-farm agronomic, biological and mechanical methods in exclusion of all synthetic off-farm inputs.

Need of organic farming

With the increase in population our compulsion would be not only to stabilize agricultural production but to increase it further in sustainable manner. The scientists have realized that the Green Revolution with high input use has reached a plateau and is now sustained with diminishing return of falling dividends. Thus, a natural balance needs to be maintained at all cost for existence of life and property. The obvious choice for that would be more relevant in the present era, when these agrochemicals which are produced from fossil fuel and are not renewable and are diminishing in availability. It may also cost heavily on our foreign exchange in future.

The key characteristics of organic farming include

Protecting the long term fertility of soils by maintaining organic matter levels, encouraging soil biological activity, and careful mechanical intervention

Providing crop nutrients indirectly using relatively insoluble nutrient sources which are made available to the plant by the action of soil micro-organisms

Nitrogen self-sufficiency through the use of legumes and biological nitrogen fixation, as well as effective recycling of organic materials including crop residues and livestock manures

Weed, disease and pest control relying primarily on crop rotations, natural predators, diversity, organic manuring, resistant varieties and limited (preferably minimal) thermal, biological and chemical intervention

The extensive management of livestock, paying full regard to their evolutionary adaptations,

behavioural needs and animal welfare issues with respect to nutrition, housing, health, breeding and rearing

Careful attention to the impact of the farming system on the wider environment and the conservation of wildlife and natural habitats

==========

Content from http://www.agritech.tnau.ac.in/org_farm/orgfarm_index.html:

ORGANIC FARMING :: Home

Organic Farming

Videos

Farming Practices

Composting Techniques

Fertilizers & Manures

Plant Protection

Certification

Post Harvest Technologies

Organic Marketing

Organic Documentation

Farmers Club

Related Links

Related Information

FAQs

Recent Updates

Organic Farming - Cultivating Sustainable Agriculture

Organic Farming Production

Organic Farming

Natrual Farming

Organic Package of Practices Horticultural Crops

Tamil Nadu Organic Farming Policy - 2023

Farmers Training in Organic Farming

Effective Microorganisms Technology in Organic Farming

Farmers Experience in Organic Farming

Cabinet Approves Policy on Promotion of city Compost

Mission Organic in Meghalaya / Mission Organic Farming - North East

IFOAM Basic Standards

Organic Farming & Zero Budget Special Technologies

Fair and good. Rice for a better life (YouTube)

NPOP Standards

Tamil Nadu Organic Certification Department

TNOCD Procedure

Indian Society for Certification of Organic Products (ISCOP)

National Center of Organic Farming (NCOF) / Anand Pattern in Organic Farming

NPOP-APEDA

==

====