MORUNG EXPRESS

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Indigenous Technical Knowledge (ITK) in paddy cultivation

Indigenous Technical Knowledge (ITK) is the actual knowledge of a given population that reflects the experiences based on tradition and includes more recent experiences with modern technologies. There is no systematic record to describe what they are, what they do and how they do what they do, how they can be changed, their operations, their boundaries and their applications. Hence, there is immense pressure on the people of India to collect, preserve, validate and adopt ITKs so as to reduce dependence on external inputs, to reduce the cost of cultivation and to propagate eco-friendly agriculture. Indigenous Technical Knowledge is the local knowledge – knowledge that is unique to a given culture or society.

ITKs in paddy cultivation

Rice is an important crop in India occupying 43 million hectares of land representing various ecosystems. The crop is cultivated 2 meters below the sea level in Kuttanadu region of Kerala and 2500 meter above sea level in Jammu Kashmir. This type of geographical and wide climatic variation provided the farmers ideal situations to develop their own indigenous practices in rice cultivation. Since rice has many types of varieties, cultivation practices, soil types, the management practices differ from place to place. This has provided ample scope for the use of ITKs evolved over generations. Some of the indigenous technical knowledge followed by the rice farmers are listed below.

1. Ash is dusted on the germinated paddy nursery before the occurrence of heavy rain. This practice prevents toppling of seedlings and also accumulation of seedlings on one side.
2. For early sprouting of paddy seeds, the seeds are soaked for 24 hours and filled in copper vessel called Anda, whose mouth is covered with paddy straw and bamboo sticks kept in criss –cross manner. Then the vessel is kept upside down in a room corner for 24 hours. The next day all seeds are sprouted.
3. In Andhra Pradesh the transplanting is done along with wind direction and not against the wind direction.
4. To prevent lodging in rice crop at maturity in water logging conditions. The upper portion of the rice plants is cut with the help of sickle. After 2 months of transplanting Excess growth of rice plant is checked due to pruning. Lower part of the plant becomes strong.
5. Economically poor farmers first harvest early paddy by deheading only the panicles and leaving the plant. If there is good late rain they get second crop from the tillers, which had not flowered earlier.
6. Ash of rice husk and cow dung cake is used in seedbeds to raise seedlings of rice by the farmers in most of the states. Ash provides a thin cover over the sown seeds and thus protects them from attack on insect pests, damage caused by birds and ants.
7. Common salt is dissolved in water and sprayed in rice fields for controlling major weeds.
8. Clipping off the tip of rice seedlings before transplanting is practiced all over the state of Assam, to ease transplantation; to facilitate uniform growth and to remove insect egg masses and other major insect pests present on the leaf tips is an alternative for chemical pesticides application.
9. Chopped pieces of colocatia and sometimes chopped peels of Citurs grandis are spread in rice field to drive away the insect pests. In some places Calotrophis gigntea in grown on bunds of paddy fields to check the insect pests.
10. Fixing of dead crabs, frogs or even pieces of jackfruit (Artocarpus heterophyllas) to bamboo sticks in rice fields and Rope dipped in kerosene oil is drawn over the standing rice crop to check insect pest.
11. Leaves and seeds of custard apple contain chemicals having insecticidal properties. Insect/pests of paddy crop are controlled by broadcasting leaves or seeds of custard apple. The smell of leaves act as repellent, whereas, leaves are toxic in nature to plant parasites. Leaves are used raw, whereas seeds are processed and used as powder.
12. Ten kilograms of fresh cow dung is mixed with 1½ liters of kerosene and the mixture is made into small balls and allowed to dry upto 75% moisture content. Then the balls are kept near the burrows at 10 feet interval. The smell emitting from the balls acts as a repellant and drives away the rats from rice fields.
13. Roasted groundnut powder and mixed with little amount of jaggery and cement is used to kill the rats. This mixture is kept on the bunds of rice fields. Few hours after consuming it, the cement gets solidified like concrete and affects the digestive system of the rats which ultimately leads to their death.
14. Fumigating rat burrows with Milagu (Pepper Corns: Piper nigrum L) and Tippili (Jawa Pepper Corn: Piper longum) will instantly kill the rats in rice fields.
15. A solution is made up of extract of 1 kg of garlic, 200 g tobacco leaves and 200 g of washing powder dissolved in 200 liters water is sprayed on the affected crop of paddy. One spray controls the insect pest by 80 percent.
16. Some farmers mix cinnamon leaves and wood ash with paddy and store the grain in bags.
17. Red pepper (Capsicum Sp) is placed in bags of rice to protect the grains from stored grain pests. Eucalyptus wood ash is added with paddy to protect seeds during storage.

Conclusion:

The agricultural development process interacts with indigenous technical knowledge. To foster rapid transfer of technology related to rice cultivation, a sound understanding of indigenous technical knowledge is needed. ITK in rice farming is important for reducing the cost of cultivation, reducing the pollution and also safeguarding the natural resource base.

Hannah Krujia
SMS Agronomy
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. Management
tices (BMPs) in
nt management

Hannah Krujia
SMS (Agronomy), KVK Phek

st Management Practices (BMPs) are farming methods that assure optimum plant growth and minimize adverse environmental effects. The BMPs presented here are for ient management on a wide variety of agricultural lands.

Have Your Soil Tested- Nutrients should be applied to soils nly as necessary. To know the soil's nutrient-supplying capacity, you must have it analyzed by a soil test laboratory. Contact the laboratory to find out how to obtain a sample that is representative of the area to be fertilized.

2. Follow Soil Test Recommendations- A soil test report indicates the amount of nutrients that the soil can supply and recommends the amount needed from other sources. All of the recommendations should be followed completely because a deficiency of one nutrient or an undesirable soil pH will limit crop response to the other nutrients.

3. Set Realistic Yield Goals- All fertilizer recommendations assume a certain yield goal for the crop to be grown. The yield history of a field is the best guide to realistic expectations. Do not over apply nutrients in the quest for unrealistic yields. Excessive amounts waste money and can contribute to water pollution.

4. Choose the Most Suitable Nitrogen Sources- It is important that nitrogen remain in the root zone long enough for it to be used by the growing crop. Regardless of its source, once nitrogen is in the plant it will not be lost and will not become a pollutant. Ammonium-nitrogen (NH4) is more likely to be held in the soil than nitrate nitrogen (NO3), which is more readily dissolved in runoff water.

5. Apply Nitrogen and Phosphorus Correctly- Nitrogen and phosphorus are less likely to be lost by erosion or runoff if they are banded directly into the soil or applied to the soil surface and promptly mixed into the soil by disking, plowing, or rotary tilling. Subsurface banding also makes it possible for nutrients to be placed directly where the crop can make the best use of them. Do not broadcast fertilizer when it is windy.

6. Timely Nitrogen Application- The timing of application is more important with nitrogen than with any other nutrient because nitrogen is applied in large amounts to many crops and is very mobile. Phosphorus is very stable once it is mixed into the soil and can be applied when most convenient. Nitrogen should be applied frequently in small amounts that are tailored to the plants immediate needs. For most crops, nitrogen should be applied in split applications that coincide as closely as possible with the uptake pattern of the crop.

7. Use Manure as a Nutrient Source- Manure and other waste or by-product materials can be excellent sources of nutrients if managed properly. The basic procedure is to collect and analyze the material to determine the nutrient content and then apply it in a recommended manner at rates based on a soil test report. Improper amounts or placement of this material can lead to water pollution and poor crop growth.

8. Control Erosion- All nutrients can be lost when soil is eroded, but phosphorus is especially vulnerable. A conservation farm plan providing for erosion control should be developed. Some specific practices are:

- *Maintain a soil cover-* Leave crop residues on the soil surface during winter. Do not till too early in the spring. Where feasible, use no-till methods. On soils that are subject to erosion or leaching, use a winter cover crop to reduce erosion, to take up nutrients, and thereby reduce leaching. A cover crop used in this way is called a "trap crop" since it "traps" and recycles nutrients for use by later crops.
- *Manage the soil for maximum water infiltration and storage-* Maintain crop residues on the soil surface. If there is little crop residue left in the fall, establish a winter cover crop, but leave the soil surface rough enough to help trap rainfall. Increase the soil's water-holding capacity by adding organic matter and maintaining good soil porosity.
- *Maintain vegetation on ditch banks and in drainage channels-* Try not to disturb vegetation in drainage channels such as ditches and sod waterways. If necessary, construct ditches larger than needed so the bottoms can be left vegetated to trap sediment and other possible pollutants.
- *Use windbreaks and conservation tillage to control wind erosion-* Wind erosion can be minimized by leaving the soil surface rough, maintaining crop residue on the soil surface, bedding to trap wind-blown sediments, keeping the soil wet, or maintaining a cover crop.

BMPs are designed to reduce harmful effects. In some sensitive areas, there may be no acceptable level of added nutrients; in these cases fertilizers should not be used. In other places they can be used along with BMPs. However, Fertilizers and other nutrient sources should never be applied haphazardly.

1st February 2013.
Morung Express.

EASTERN MIRROR 20th Aug - 2012

ATMA conducts farmers training at Chizami

ATMA officials and resource persons along with farmers during the training at Chizami town on August 17.

DIMAPUR, AUG 19 (EMN): Altogether 70 farmers have participated in the ATMA farmers training on August 17 at Chizami town under Pfutsero Block.

Farmers were trained on Control measures of weeds and rodents; Pests of rice and their management; and preventive measures against common livestock and poultry problems.

Resource persons were Ms. Shetalu Vadeo (AO, Pfutsero), Ms. Hannah Kruji (SMS, KVK Phek) and Dr. Imomanen Tzudir (VAS & BTT Convenor, Pfutsero). Renabemo Odyuo, SDO (C) Chizami, has exhorted the farmers to adapt the scientific methods.

Ms. Keneile-u, BTM (ATMA) has thanked all the participants and administrative officials for their cooperation. Farmer-friends were also given honorarium during the day.

Panchagavya an important organic produc

Panchagavya, an organic product has the potential to play the role of promoting growth and providing immunity in plant system. Panchagavya consists of nine products viz. cow dung, cow urine, milk, curd, jaggery, ghee, banana, Tender coconut and water. When suitably mixed and used, these have miraculous effects.

Mix Cow dung - 7 kg and Cow ghee - 1 kg thoroughly both in morning and evening hours and keep it for 3 days. After 3 days mix cow urine 10 liters and water 10 liters and keep it for 15 days with regular mixing both in morning and evening hours. After 15 days mix the following and panchagavya will be ready after 30 days.

- Cow milk - 3 liters
- Cow curd - 2 liters
- Tender coconut water - 3 liters
- Sugarcane juice / Jaggery - 3 kg
- Well ripened poovan banana – 12 nos.

Preparation

All the above items can be added to a wide mouthed mud pot, concrete tank or plastic can as per the above order. The container should be kept open under shade. The content is to be stirred twice a day both in morning and evening. The Panchagavya stock solution will be ready after 30 days. (Care should be taken not to mix buffalo products. The products of local breeds of cow is said to have potency than exotic breeds). It should be kept in the shade and covered with a wire mesh or plastic mosquito net to prevent houseflies from laying eggs and the formation of maggots in the solution. If sugarcane juice is not available add 500 gram of jaggery dissolved in 3 liter of water.

Recommended dosage

Spray system

Three litres of Panchagavya to every 100 litres of water is ideal for all crops. The power sprayers of 10 litres capacity may need 300 ml/tank. When sprayed with power sprayer, sediments are to be filtered and when sprayed with hand operated sprayers, the nozzle with higher pore size has to be used.

Flow system

The solution of Panchagavya can be mixed with irrigation water at 50 litres per hectare either through drip irrigation or flow irrigation

Seed/seedling treatment

3% solution of Panchagavya can be used to soak the seeds or dip the seedlings before planting. Soaking for 20 minutes is sufficient. Rhizomes of Turmeric, Ginger and sets of Sugarcane can be soaked for 30 minutes before planting.

Seed storage

3% of Panchagavya solution can be used to dip the seeds before drying and storing them.

Periodicity

1.	Pre flowering phase	Once in 15 days, two sprays depending upon duration of crops
2.	Flowering and pod setting stage	Once in 10 days, two sprays
3.	Fruit/Pod maturation stage	Once during pod maturation

Time of application of Panchakavya for different crops is given below:

Crops	Time schedule
Rice	10,15,30 and 50th days after transplanting
Sunflower	30,45 and 60 days after sowing
Black gram	Rainfed: 1st flowering and 15 days after flowering Irrigated: 15, 25 and 40 days after sowing
Green gram	15, 25, 30, 40 and 50 days after sowing
Castor	30 and 45 days after sowing
Groundnut	25 and 30th days after sowing
Bhendi	30, 45, 60 and 75 days after sowing
Tomato	Nursery and 40 days after transplanting: seed treatment with 1 % for 12 hrs
Onion	0, 45 and 60 days after transplanting
Rose	At the time of pruning and budding

Effect of Panchakavya

Leaf

Plants sprayed with Panchagavya invariably produce bigger leaves and develop denser canopy. The photosynthetic system is activated for enhanced biological efficiency, enabling synthesis of maximum metabolites and photosynthates.

Stem

The trunk produces side shoots, which are sturdy and capable of carrying maximum fruits to maturity. Branching is comparatively high.

Roots

The rooting is profuse and dense. Further they remain fresh for a long time. The roots spread and grow into deeper layers were also observed. All such roots help maximum intake of nutrients and water.

Yield

There will be yield depression under normal circumstances, when the land is converted to organic farming from inorganic systems of culture. The key feature of Panchagavya is its efficacy to restore the yield level of all crops when the land is converted from inorganic cultural system to organic culture from the very first year. The harvest is advanced by 15 days in all the crops. It not only enhances the shelf life of vegetables, fruits and grains, but also improves the taste. By reducing or replacing costly chemical inputs, Panchagavya ensures higher profit and liberates the organic farmers from loan.

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MORUNG EXPRESS. DATED - 5/10/12.

EASTERN MIRROR 7/8/12

Crop diversification

EASTERN MIRROR.

- HANNAH K. ASANGLA -

India is a country of about one billion people. More than 70 percent of India's population lives in rural areas where the main occupation is agriculture. Due to diverse agro-climatic conditions in the country, a large number of agricultural items are produced. Broadly, these can be classified into two groups - food grains crops and commercial crops. Due to the challenge of feeding our vast population and the experience of food shortages in the pre-independence era, 'self reliance' in food grains has been the cornerstone of our policies in the last 50 years. Crop diversification is intended to give a wider choice in the production of a variety of crops in a given area so as to expand production related activities on various crops and also to lessen risk. The crop shift (diversification) also takes place due to governmental policies and thrust on some crops over a stipulated time, e.g. establishment of the Technology Mission on Oilseeds to give thrust on oilseeds production as a national need for the country's requirement for less dependency on imports. Market infrastructure development and certain other price related supports also induce crop shift. Often low volume high-value crops like spices also aid in crop diversification.

An effective strategy for achieving crop diversification

- food & nutrition security,
- income growth,
- poverty alleviation,
- employment generation,
- judicious use of land and water resources,
- sustainable agricultural development,
- and environmental improvement,

PATTERNS OF CROP DIVERSIFICATION - With the advent of modern agricultural technology, especially during the period of the Green Revolution in the late sixties and early seventies, there is a continuous surge for diversified agriculture in terms of crops, primarily on economic considerations. The crop pattern changes, however, are the outcome of the interactive effect of many factors which can be broadly categorized into the following five groups:

a) Resource related factors covering irrigation, rainfall and soil fertility.

b) Technology related factors covering not only seed, fertilizer, and water technologies but also those related to marketing, storage and processing.

c) Household related factors covering food and fodder self-sufficiency requirement as well as investment capacity.

d) Price related factors covering output and input prices as well as trade policies and other economic policies that affect these prices either directly or indirectly.

e) Institutional and infrastructure related factors covering farm size and tenancy arrangements, research, extension and marketing systems and government regulatory policies.

Constraints in Crop Diversification

i. Over 117 m/ha (63 percent) of the cropped area in the country is completely dependent on rainfall

ii. Sub-optimal and over-use of resources like land and water resources, causing a negative impact on the environment and sustainability of agriculture.

iii. Inadequate supply of seeds and plants of improved cultivars.

iv. Fragmentation of land holding less favouring modernization and mechanization of agriculture.

v. Poor basic infrastructure like rural roads, power, transport, communications etc.

vi. Inadequate post-harvest technologies and inadequate infrastructure for post-harvest handling of perishable horticultural produce.

vii. Very weak agro-based industry.

viii. Weak research - extension - farmer linkages.

ix. Inadequately trained human resources together with persistent and large scale illiteracy amongst farmers.

x. Host of diseases and pests affecting most crop plants.

xi. Decreased investments in the agricultural sector over the years.

CONCLUSIONS

India, being a vast country of continental dimensions, presents wide variations in agroclimatic conditions. Such variations have led to the evolution of regional niches for various crops. Historically, regions were often associated with the crops in which they specialize for various agronomic, climatic, hydro-geological, and even, historical reasons. But, in the aftermath of technological changes encompassing bio-chemical and irrigation technologies the agronomic niches are undergoing significant changes. With the advent of irrigation and new farm technologies the yield level of most crops-especially that of cereals-ha witnessed an upward shift making it possible to obtain given level of output with reduced area or more outpu with a given level of area and creating thereby the con dition for inter-crop area shift (diversification) withou much disturbance in output level. A strategy of cruci importance is growth enhancing non-farm activities. Th calls for investment in rural infrastructure and skill upgr dation and it also implies a careful examination and a justment of macro-policies, which influence the relati profitability of different activities and in turn determi the nature and pace of diversification.

SMS – Agronor
KVK, Phek D

12th Aug - 2009.

Sensitising Tuophema, Pfutsero farmers on rodent control

DIMAPUR: The department of Agriculture Kohima district organized a one day awareness campaign on rodent control at Tuophema village covering eight villages of Northern Angami area. More than 130 farmers, officers from KVK Kohima, officers and staff from Agriculture department including Doordarshan Kohima (DDK) team participated.

While exhorting the farmers T.R. Yanthan joint director of agriculture department pointed out that farmers were mostly dependant on agriculture and livelihood enterprise and while doing so farmers encountered numerous agricultural enemies.

Stating that enemies of agriculture included insect pests and diseases of crops, wild animals and pest birds, calamities such as drought, excess rainfall, landslides, and erosions, Yanthan advised farmers to avail of the program to the fullest.

Rongseninla deputy director (plant protection) exhorted the farmers to participate in rodent awareness campaign going on all over the State.

The program was mainly conducted to make farmers aware of what consequence would come when danger signs like bamboo flowerings, ecological imbalances due to human excessive manipulation and climate changes were not taken into consideration at right time.

Resource person G. Ikuto Zhimomi, District Agriculture Officer, Kohima explained in detail about rodents and its managements specially rats that were a common problem.

He further emphasized on efficiency and effectiveness of management based on scientific studies of rats behaviour, life and its habitat and characters with which control measures become easier for farmers to adopt.

The best option for farmers to control rats either in the fields or at homes were by employing eco-friendly methods like natural control, biological control, cultural method and mechanical methods. He appealed to village authorities to enforce rule of the council by banning hunting, killing of beneficial insects, beneficial birds as predators, beneficial animals etc. to bring back bio-equilibrium. Local traps were also demonstrated to the farmers.

Further, Tuophema village council chairman Pfüdulhou Kense thanked the department of Agriculture for conducting relevant training in the village level.

He also exhorted farmers by saying that agricultural products of other districts and other neighboring states entering Nagaland which were bought by local farmers in spite of having all resources and potentiality at the state's disposal was a great shame. He therefore challenged the farmers to be productive and market oriented producers. The Programme was chaired by T D Chiru, APPO and vote of thanks was proposed by Scytevono, Ao. Special highlights of the training included demonstration of live local traps and distribution of Rodenticides to all participants.

Pfutsero: The department of agriculture conducted a rodent awareness campaign on August 1, 4 and 6 at Sakraba, Kadia (Kami) and Razeba respectively under Pfutsero subdivision in order to create awareness on outbreak of rodents due to gregarious bamboo flowering.

The resource persons during the programme were Sanuzo Neinu, SDAO Pfutsero who deliberated on details of bamboo plants and bamboo flowering which invites rodents through abnormal breeding. He also gave a detailed characteristics, behavior, and management (control methods) of rodents.

Others who spoke at the progamme included Hannah K. Asangla (SMS) Agronomy, and Rinku (SMS) horticulture from KVK Porba. Altogether 156 farmer participated in the training.

Meanwhile, the farmers have expressed gratitude to the department for conducting the training.

MORUNG EXPRESS

Practical Agronomic Measures for Soil and Water Conservation

March 8, 2017

Fertile soil and good quality water have become precious natural resources, their efficient and economical use is the first and foremost action to conserve them. The practical methods for soil and water conservation can be broadly divided into two classes.

i) Agronomic practices.

ii) Mechanical measures.

By following different agronomic practices we can reduce soil erosion, increase moisture holding capacity of soil and can minimize problems like water logging, soil salinization etc.

Agronomic measures for soil and water conservation

1. CONTOUR- FARMING: As rain falls, a lot of runoff is generated which generally leads to soils erosion on its way downward. This removes the top fertile soil along with soil nutrients and plant seeds thus leading to scanty and uneven growth of crop.

2. MULCHING: Mulching is one of the simplest and beneficial practices for soil and water conservation. Mulch is simply a protective layer of material that is spread on top of the soil to prevent it from blowing and being washed away. Mulch can either be organic such as grass clippings, straw, bark and similar materials or inorganic such as stones, brick chips and plastic. . The mulching practice yields following benefits:

i) Protects the soil from erosion.

ii) Conserve moisture in soil thus saving the need for frequent irrigation.

iii) Reduce compaction of soil due to impact of heavy rains.

iv) Maintains soil temperature.

v) Prevents weed growth and loss of soil nutrients.

3. ENHANCING THE GROWTH OF SPECIFIC CROPS: Enhancing the growth of specific crops which provide maximum cover, reduce runoff and soil loss e.g. legume crops in general provide a better cover and hence better protection to cultivated land against erosion. These may vary from region to region depending upon topographical and climate conditions.

4. STRIP CROPPING: It is a combination of contouring and crop rotation in which alternate strips of row crops and soil conserving crops are grown either at right angles to the direction of the prevailing wind, or following the natural contours of the terrain to prevent soil erosion.

5. MIXED CROPPING: In this practice two or more crops are grown in the same field at a particular time. Some of the benefits of mixed cropping are better and continuous cover of the land, good protection against the beating action of rain. The different crops grown in mixed cropping have their roots at different depths holding the soil more firmly thus preventing soil erosion.

Mechanical measures for soil and water conservation

These measures play an important role in soil and water conservation. These are used in conjugation with agronomic practices when they alone are not much effective. The main principles of mechanical measures are:

(i) To facilitate infiltration by increasing the time of concentration.

(ii) To breakup a long slope into several short ones to decrease velocity of runoff.

1. CONTOUR-BUNDING: In this practice small bunds are constructed at regular intervals across the slope of the land.

2. SUBSOILING: It is basically a primary tillage operation, which consists of breaking the soil structure up to a depth of 30 to 60 cm. This practice facilitates greater infiltration rates and moisture holding capacity of the soil.

3. BASIN LISTING: In this method of soil and water conservation, basins are constructed using a special implement called basin-lister. These basins are constructed across the slope. Basin listing provides maximum time to rain water for infiltration into the soil.

4. BENCH TERRACING: In this practice a series of platforms are constructed having suitable vertical drops. The range of vertical drop may vary from 2 to 6 feet depending upon prevailing conditions. The capital cost of bench- terracing is more than that of bunding initially but in longer run it proves economical.

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8/3/17

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FRIDAY 03•11•2017
THE MORUNG EXPRESS

Importance and impact of crop geometry in maize under Phek District

Dr. Hannah Krujia
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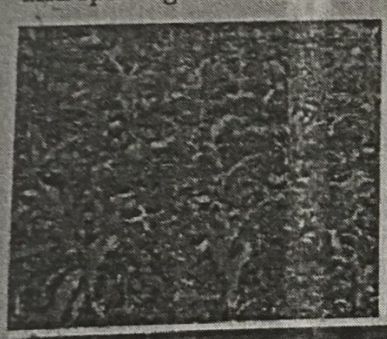
Maize is the second important crop after paddy in Nagaland. The area under maize is 8820 hectare and the productivity is 19.72 quintal/ha in Phek District. However majority of the farmers do not maintain spacing instead they sow the seeds haphazardly. Hence, cultural operation during the crop stand becomes difficult. Crop geometry for maintaining spacing offers an effective solution for good crop growth and yield.

Crop geometry is the shape of the space available for individual plants, it manipulates light interception, rooting pattern and moisture extraction resulting in the enhancement of crop yield. Farmers from selected villages were made aware of crop geometry and hands on demonstration were imparted to adopt crop geometry in their field. A trial on crop geometry using HQPM 1 was conducted on in an area of 0.02 ha in jhum field and spacing was maintained at 60X40 cm.



It was found that crop geometry enhanced the cob yield by 55% increase in yield. The net return also increased by 38% as compared to traditional cultivation of maize. KVK, Phek conducted various activities viz., capacity building programmes, method demonstrations, field days and provided advisory services through SMS, phone to farmers about the technology. Imparting technical guidance has helped in increasing the yield of maize.

THE MORUNG EXPRESS
THE POWER OF TRUTH

Biocomposting an important component in organic farming Sunday, August 06, 2017

Dr. Hannah Krujia
SMS Agronomy
KVK Phek

The term bio-compost means plant matter that has been decomposed and recycled as a fertilizer or manure. Bio-compost is considered as a key ingredient in organic farming. It is very rich in nutrients. The process bio-composting is done by simply piling up wastes in the field or any outdoor place and then leave it undisturbed for a year or more. Bio-compost in the ecosystems is very useful for control of soil erosion, wetland construction, and as landfill cover. Modern day bio-composting process has many steps like monitoring of the composting. It is usually done by shredding the plant matter, adding of sufficient water to maintain the proper moisture level and then regularly turning the mixture to provide better aeration. Addition of worms and fungi helps in the process of decomposition. They break up the complex compounds into simpler ones and during the process lots of heat, carbon dioxide and ammonium is produced. This ammonium is again utilized by the microbes which are made available to the plants as nitrites and nitrates.

Benefits of bio compost:

Soil:

- Improves its physical structure
- Enriches soil with micro-organisms
- Microbial activity in worm castings is 10 to 20 times higher than in the soil and organic matter that the worm ingests
- Attracts deep-burrowing earthworms already present in the soil
- Improves water holding capacity

Plant Growth:

- Enhances germination, plant growth and crop yield
- Improves root growth and structure
- Enriches soil with micro-organisms

Economic:

- Biowastes conversion reduces waste flow to landfills
- Elimination of bio-wastes from the waste stream reduces contamination of other recyclables collected in a single bin
- Creates low-skill jobs at rural level
- Low capital investment and relatively simple technologies make vermicomposting practical for less-developed agricultural regions

Environmental:

- Helps to close the "metabolic gap" through recycling waste on-site
- Large systems often use temperature control and mechanized harvesting, however other equipment is relatively simple and does not wear out quickly
- Production reduces greenhouse gas emissions such as methane and nitric oxide

Uses of bio compost:

1. Compost is generally recommended as an additive to soil, or other matrices such as coir and peat, as a tilth improver, supplying humus and nutrients.
2. It provides a rich growing medium, or a porous, absorbent material that holds moisture and soluble minerals, providing the support and nutrients in which plants can flourish, although it is rarely used alone, being primarily mixed with soil, sand, grit, bark chips, vermiculite, and clay granules to produce loam.
3. Compost can be tilled directly into the soil or growing medium to boost the level of organic matter and the overall fertility of the soil. Compost that is ready to be used as an additive is dark brown or even black with an earthy smell.
4. Composting can destroy pathogens or unwanted seeds. Unwanted living plants (or weeds) can be discouraged by covering with mulch/compost.

Thus, bio-composting is an easy and simple process for the decomposition of organic wastes which in turn can be used as manure or fertilizer. The process is also very cost effective.

Krujia 7/8/17. (Hannah)

Eastern Mirror June 6 2017

MGM School Pre primary wing

Bethel School Porba

ake good care of the environment. He also reminded students to be esponsible in disposing waste o that the place where they live ill be neat and clean for healthy aving.

alijan School: Balijan Hindi nglish School observed World nvironment Day, wherein head sistant teacher asked the stu- nts to care the mother earth and intain good relationship with nature. After the programme, dents carried plantation drive.

Xavier Jalukie: St. Xavier her Secondary School, Jalukie, erved World Environment Day organising a plantation and nliness drive.

S: Baptist Mission School oma observed World Environ- t Day by planting tree sapling, ributing tree seedlings and ing the school premises under eadership of Eco-club and ce club. Headmaster of the

children.

Bethel School Porba: Krishi vigyan Kendra, Phek in collaboration with Bethel School, Porba celebrated World Environment Day. Competitions such as singing, drawing and essay writing were conducted to mark the occasion.

Dr. Hannah Krujia, KVK Phek highlighted the importance of the natural resources and consequences of over exploitation in day to day life. Dr. Rinku Bharali briefed the students on importance of tree plantation and its effect on environment. Kuve Puro, assistant head teacher highlighted the causes of environmental degradation and the remedies to overcome it. Around 200 sapling of various tree species were planted by the students in the village.

RJHSS: Ram Janaki Higher Secondary School observed

World Environment Day, by organising various indoor activities