2/6/2017.

Water Requirement of Some Important Field Crops

Hannah Krujia, SMS – Agronomy
KVK, Phek District

Water is an important component for plant growth. It constitutes three-fourth of the body weight. Water is either supplied by rain or irrigation. An efficient utilization of irrigation is essential to supply water at different critical stages during plant growth to prevent the economic loss. Though water is an economic input, it differs from other inputs in many respects. Suppose water is produced like fertilizers or chemicals, its cost would be enormous. Therefore, maximum yield per unit water applied should be more.

Climate, soil and water are the three basic resources which determine the nature of crops that can be grown successfully in a particular region. An efficient utilization of these resources is essential for optimum production of food and fibre for human life, feed for cattle and raw materials for industry.

Paddy

Paddy is a semi-aquatic plant and covers about 35% of irrigated area in the country. Cultural practices like puddling and transplanting reduce percolation losses, weed growth but increase the availability of plant nutrients and regulate soil and water temperatures. It improves photosynthesis in the lower leaves due to reflected light from the water surface. These operations may require about 200 - 300 mm of water per hectare. Selective submergence during critical stages (initial tillering, panicle initiation to flowering) would be sufficient to maximize yield and to save water during the monsoon period. The critical stages for irrigation in rice crop are tillering, panicle initiation, flowering and grain filling stage.

Maize

Maize is grown both for grain and forage. It is grown primarily as a kharif crop from March to October. Crop has early vegetative, tasselling and silking stages as critical periods. After dough stage, there is no need of irrigation. Permissible depletion of soil moisture may be 25% in light soils and 50% in sandy loam to loam soils. If the draining out of water in case of heavy rains is delayed, 30 to 60 kg N/ha may be added immediately following drainage to retrieve the yield loss.

Foxtail millet

Foxtail millet is important millet grown during kharif in warm areas with a seasonal rain of about 15-20 centimeters. In most of the areas it is sown with the onset of monsoon and no post-sowing irrigation is applied. Flowering and milking stages are the critical stages of irrigation for Foxtail millet crop. Crop gives the optimum yield with irrigation based on 75% depletion of available soil moisture from the top 30 cm layer. Foxtail millet is a drought resistant crop. If there is no rain generally two irrigations are required first at flowering stage and second at the milking stage. If moisture is a limiting factor, irrigation should also be done at the time of ear head emergence because it is the most critical stage for moisture stress.

Groundnut

Groundnut is the most important oilseed crop of the country. Raised as kharif crop in warm areas of relatively high rainfall, it often suffers from periodic water deficits during long rainless intervals. This occasional moisture deficiency is one of the important factors contributing to low yield of kharif groundnut. If dry spell occurs, irrigation becomes necessary. First irrigation at the start of flowering and subsequent irrigations whenever required during the fruiting period to encourage peg penetration and pod development.

Mustard and Rapeseed

These crops are primarily raised as rainfed crops during the rabi season. Due to low and uncertain rainfall during their growing season, these crops generally show favourable response to irrigations. Crop requires 1- 4 irrigations, depending upon the soil moisture storage in the profile and the prevailing weather. Pre-bloom and pod filling stages are considered to be critical stages therefore irrigations at these stages are beneficial.

Potato

Potato is an important crop which has two growing seasons viz. autumn and spring. Autumn potato is the main crop and sown in September-October and harvested in December- January. A wet moisture regime is conducive not only for adequate water availability to the crop but also keeps soil strength low which permits better development of tubers. Most critical stages for irrigation in potato are germination, stolon formation followed by earthing, tuber bulking which coincide 10 - 12, 30 - 35 and 55 - 60 days after sowing. Moisture stress at these stages results in drastic reduction of tuber yields.

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THE POWER OF TRUTH
Thursday, April 13, 2017

Effect of weather and climate on crop environment

Hannah Krujia SMS – Agronomy, KVK, Phek District

Weather and climate are the most invasive factors of crop environment. Knowledge of agrometeorology is useful in several aspects of practical agriculture as indicated below:

1. It has practical utility in timing of agriculture operations so as to make the best use of favorable weather conditions and make adjustments for adverse weather.
2. The dangers of crop production due to the pest and disease incidence, occurrence of prolonged drought, soil erosion, and frost and weather hazards can be minimized.
3. Weather support also provides guidelines for long range or seasonal planning of crops and cultivars most suited to possible climatic conditions.
4. Agrometeorological information can be used in land planning, risk analysis of climatic hazards, production and harvest forecasts and linking similar crop environments for crop adaptability and productivity.

Weather is a phrase of climate representing atmospheric condition at a given place and at a given instant of time as against climate, representing atmospheric condition for longer period of time over a large area. Components of weather and climate or simply weather elements include:

- Temperature
- Solar radiation
- Humidity
- Cloud
- Pressure
- Wind
- Precipitation

The influence of weather and climate on crop growth and development and final yield is complicated by complexity of interactions with crops and the environment during the crop season. The influence of weather and climate on crop productivity can be briefed below:

Weather parameters with favorable influence

1. Weather and climate are important factors to determine the success or failure of agriculture.
2. All the agriculture operations from sowing to harvest of crops depend on the mercy of weather.
3. Climate determines suitability of a crop to a particular region while weather plays a major role in the productivity of a crop in the region.
4. The excess or shortage of elements of weather and climate exerts a negative influence on crop growth, development and final yield.
5. The effect of weather and climate is complex as elements of climate operate simultaneously in nature.
6. Due to complexity of environment in which a crop is grown, it is difficult to assign an optimum value of climatic element for maximum crop productivity.

Weather parameters with negative influence

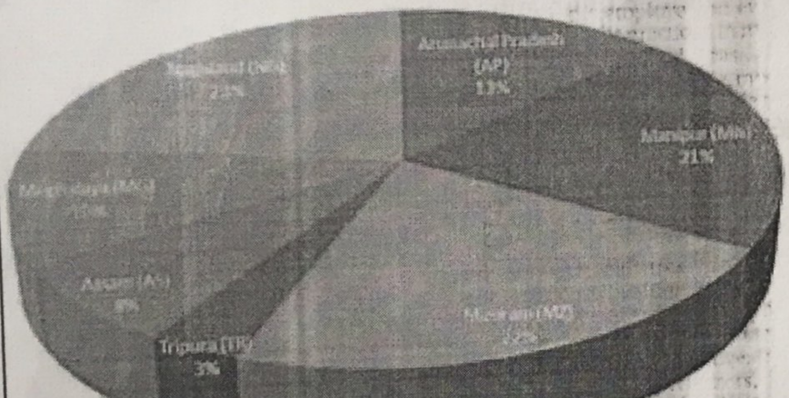
1. Excessively and untimely rains.
2. Scanty rains with prolonged dry spells.
3. Heat and cold waves.
4. Dust-storms, thunderstorms and hailstorms.
5. High winds.
6. Floods.

13/4/17

Various types of agriculture farming in India

Dr. Hannah Krujia
ACTO Agronomy, KVK Phek

India has a long agricultural history, which dates back approximately ten thousand years. Today, India has the 2nd highest crop output in the world. Different types of Farming Systems in India are strategically utilised, according to the locations where they are most suitable. The farming systems that significantly contribute to the agriculture of India are subsistence farming, organic farming and commercial farming. Regions throughout India differ in types of farming they use, some are based on horticulture, ley farming, agroforestry, and many more. Due to India's geographical location, certain parts experience different climates, thus affecting each region's agricultural productivity differently. India is very dependent on its monsoon cycle for large crop yields. Based primarily on nature of land, climatic characteristics and available irrigational facilities, the farmers in India practise different types of farming.



1. **Shifting Agriculture:** In this type of agriculture, first of all a piece of forest land is cleared by felling trees and burning of trunks and branches. After the land is cleared, crops are grown for two to three years and then the land is abandoned as the fertility of the soil decreases. The farmers then move to new areas and the process is repeated. Dry paddy, maize, millets and vegetables are the crops commonly grown in this type of farming. This is practiced in most parts of India especially North East Region.

2. **Subsistence Agriculture:** In subsistence agriculture, farmer and his family produce cereals for themselves only or for local market. It is characterised by small and scattered land holdings and use of primitive tools. As the farmers are poor, they do not use fertilisers and high yielding variety of seeds in their fields to the extent they should do. Cereals like wheat, rice, millets are mainly raised.

3. **Intensive Farming:** Intensive farming aims at maximum possible production on the limited farms with all efforts possible under the circumstances. It is capable of raising more than one crop a year and huge capital and human labour is employed on every hectare of land. It is practiced in most parts of densely populated areas.

4. **Extensive Farming:** It is the modern system of farming done on large farms also known as mechanical farming due to extensive use of machines. Extensive farm raises only one crop a year and employment of labour and capital per hectare of land is comparatively less.

5. **Plantation Agriculture:** In plantation agriculture, bush or tree farming is done on huge areas. It is capital centered and needs good managerial ability, technical knowledge, improved machineries, fertilizers, irrigation and transport facilities. A particular or single sown crop like rubber, tea, coconut, coffee, cocoa, spices and fruit crops etc. is sown and the yield is generally obtained continuously for a number of years. Plantation agriculture is export oriented agriculture. Most of the crops grown in plantation agriculture have a life cycle of more than two years. It is practiced in Kerala, Karnataka, Assam and Maharashtra.

6. **Commercial Agriculture:** Commercial Agriculture is practiced to raise crops on a large scale with a view to export them to other countries and earn money. This type of agriculture farming is done mostly in sparsely populated areas. Gujarat, Punjab, Haryana and Maharashtra, mainly practice this type of farming. Wheat, cotton, sugarcane, corn etc. are some of the commercial crops.

7. **Dry Land Farming:** Dry farming or dry-land farming may be defined as a practice of growing crops without irrigation in areas which receive an annual rainfall of 750 mm - 500 mm or even less. In dry land farming, moisture is maintained by raising special type of crops. Gram, jowar, bajra and peas are such crops which need less water. It is practiced in low rainfall areas or where there is inadequate irrigation facility. This is practiced in dry areas of the country such as western, north-western India and central India.

8. **Wet Land Farming:** Wet land farming depends mainly upon rains, so it is practiced in high rainfall or well irrigated areas. In this type of farming rice, jute and sugarcane are grown. This type of farming is prevalent in the north, north-eastern India and on the slopes of the Western Ghats. On the basis of seasons, crops grown in India can be classified as follows—
   (i) **Kharif:** Kharif crops are grown with the start of monsoon till the beginning of winter (June-July to October-November).
   Rice, maize, millets, cotton, groundnut, moong, urad etc. are kharif crops.
   (ii) **Rabi:** Rabi crops are sown with the start of winter till the beginning of summer (October-November to March-April).
   Wheat, barley, gram and oilseeds are rabi crops.
   (iii) **Zaid:** Zaid crops are grown in short season of summer. Watermelon and cucumbers are zaid crops.

9. **Terrace Agriculture:** The hill and mountain slopes are cut to form terraces and the land is used in the same way as in permanent agriculture. Due to scarcity of the availability of flat land, terraces are made to provide small patch of level land. Soil erosion is also checked due to terrace formation on hill slopes.

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THE MORUNG EXPRESS

An Introduction to Hydroponi

Dr. Hannah Krujia
SMS Agronomy, KVK Phek

ydroponics

The science of soil-less gardening is called droponics. It basically involves growing althy plants without the use of a traditional il medium by using a nutrient like a minal rich water solution instead. Hydroponic ant requires selected nutrients, some wa-, and sunlight to grow. Not only do plants ow without soil, they often grow a lot better th their roots in water instead. Hydroponic rdening is fast becoming a popular choice r many growers around the world due to its ore sustainable approach to resource usage an the usual growing methods.

ie Nutrient Solution

One can make one's own special soluons for different types of crops based on the iemical elements the plants need most. The ght nutrient mix combines primary nutriits (nitrogen, potassium and magnesium), condary nutrients (calcium, sulphur, phosiorus) and micronutrients (iron, copper, anganese, zinc, molybdenum, boron). The cipe for a basic nutrient solution that we can ake ourself is by diluting the nutrients in 20 res of filtered water.

- 25 ml of CaNO3 (calcium nitrate)
- 1.7 ml of K2SO4 (potassium sulfate)
- 8.3 ml of KNO3 (potassium nitrate)
- 6.25 ml of KH2PO4 (monopotassium phosphate)
- 17.5 ml of MgSO4 (magnesium sulfate)
- 2 ml of trace elements

After preparation of the solution, store the lution in a food-grade container at room mperature and away from sunlight. Make ire to shake it well before using. Also, the plants will indicate if they are receiving too few or too many nutrients such as if there is deficit in nutrients the leaves will turn yellow, if too much and they will look brown, burnt or curled.

A hydroponics system

Hydroponics systems are various structures (e.g., towers, trays, A-frames) that hold water or other inert media and provide places to grow plants. Hydroponics systems fall into two basic categories: a solution (liquid) culture and an aggregate culture. In a solution system, the plant roots grow directly into a nutrient-filled solution. In an aggregate system, such as gravel, sand, or small clay pellets, the roots grow into the medium. In each method, the system supplies the three essential ingredients plant roots need to grow: water/moisture, nutrients and oxygen. Different types of systems are available to meet individual comfort levels in growing plants hydroponically. These include drip, ebb and flow, nutrient film technique, water culture and aeroponics.

While one can grow almost anything hydroponically, some vegetables thrive more in hydroponic systems than others. Choose plants that require moisture such as cucumber, tomato, capsicum, strawberry, lettuce and leafy greens. Also, when setting up a hydroponic garden, depending on the size, sturdiness and root development of the plants to be grown and the structure of the system, one needs to decide whether to use only a solution culture or some sort of a growth medium. Plants with shallow roots, like leafy greens, do fine in solution cultures. On the other hand, plants with deep roots, such as beets, and heavy vegetables, such as cucumbers, do better with growth mediums such as foam, coconut husk, sponges, and peat moss. Also, flowering and fruiting plants need e to sunlight while leafy greens grow under inexpensive fluorescent lights placed above them.

Advantages of hydroponic crop pro

- Hydroponically produced ve can be of high quality and ne washing.
- Soil preparation and weeding is or eliminated.
- It is possible to produce very hi of vegetables on a small area be environment optimal for plant created. All the nutrients and w the plants need, are available at
- One does not need good soil to g etables.
- Water is used efficiently.
- Pollution of soil with unused nu greatly reduced

Disadvantages of hydroponics

- Hydroponic production is mana capital and labour intensive.
- A high level of expertise is requi
- Daily attention is necessary.
- Specially formulated, soluble must always be used.
- Pests and diseases remain a big
- Finding a market can be a prob

The difference between hydropo etable production and production

Hydroponics	Field prod
No soil is required	Good tops quired. G good drain post, diseas
Plants are irrigated automatically, there is no water stress	Plants need rigated to water stres
Nutrients are available at all times	Nutrients added to so
Only soluble fertilizers are used. Hydroponic fertilizer formulations contain a balanced nutrient content	Unless a l analysis is much or nutrients added.
Soil borne diseases can be eliminated	Soil borne can build soil.
Hydroponic production is not organic because artificial nutrients are always used and plants are usually not grown in soil	It is possib duce org etables in cause one organic such as and manu

FRIDAY 01•11•2019
THE MORUNG EXPRESS

A review: System of crop intensification on field crops

Dr. Hannah Krujia
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With the ever increasing demand for food accompanied by the constraints of climate change and the availability and quality of soil and water, the farmers are challenged to produce more food per hectare with less water and with fewer agrochemical inputs if possible. The ideas and methods of the system of rice intensification which is improving irrigated rice production are now being extended and adapted to many other crops viz., wheat, maize, finger millet, sugarcane, legumes, vegetables, and even spices. Promoting better root growth and enhancing the soil's fertility with organic materials are being found effective means for raising the yields of many crop plants with less water, less fertilizer, reduced seeds, fewer agrochemicals, and greater climate resilience. The principles and practices that improve the productivity and resilience of these varied crops are broadly referred to as the system of crop intensification (SCI).

System of crop intensification principles and practices build upon the productive potentials that derive from plants having larger, more efficient, longer-lived root systems and from their symbiotic relationships with a more abundant, diverse, and active soil biota. The main elements of System of crop intensification include:

1. High-quality seeds or seedlings, well selected and carefully handled, to establish plants that have vigorous early growth, particularly of their root systems.
2. Providing optimally wide spacing of plants to minimize competition between plants for available nutrients, water, air, and sunlight. This enables each plant to attain close to its maximum genetic potential.
3. Keeping the topsoil around the plants well-aerated through appropriate implements or tools so that soil systems can absorb and circulate both air and water. It is usually done as part of weeding operations, this practice can stimulate beneficial soil organisms, from earthworms to microbes, at the same time that it reduces weed competition.
4. If irrigation facilities are available, these should be used but sparingly, keeping the soil from becoming waterlogged. A combination of air and water in the soil is critical for plants growth and health, sustaining both better root systems and a larger soil biota.
5. Amending the soil with organic matter, as much as possible to enhance its fertility and structure and to support the soil biota. Soil with high organic content can retain and provide water in the root zone on a more continuous basis, reducing crops need for irrigation water.
6. Reducing reliance on inorganic fertilizers and pesticides, and to the extent possible, eliminating them. This will minimize environmental and health hazards and avoids adverse impacts on beneficial soil organisms.

System of crop intensification as a concept and strategy can be said to have begun with farmers modifications of their usual methods for cultivating crops. Some examples are as below:

1. Finger millet (Eleusine coracana) - About 40 years ago, millet farmers in Haveri district of northern Karnataka, developed a system of cultivation that they called guli ragi ('holeplanted millet') This food crop is traditionally established by broadcasting seed which gave a yield of 1.25 – 2.5 tonnes/ha, with a maximum of 3.75 tonnes. In guli ragi cultivation, young millet seedlings 20 –25 days old are transplanted two seedlings per hole spaced at 45 × 45 cm in a square grid pattern. Guli ragi includes putting a handful of compost or manure into each hole along with the seedlings to boost soil fertility. When the plants are established in a square grid, intercultivation between rows is possible in perpendicular directions, not just between rows. Millet crop acquires more resistance to lodging, especially when traditional varieties are planted and their crop is less susceptible to pests and diseases, particularly to stem borers and aphids, according to the farmers (Uphoff, 2006).
2. Wheat (Triticum spp.) - The system of wheat intensification (SWI) adapts SRI ideas and methods for production of wheat. Farmers working with NGO guidance made further increases in yield averaging 4.6 tonnes/ha instead of 2 tonnes/ha (PRADAN, 2012). The Jeevika programme reported that average SWI yield increased to 72% in 2012, with households net income/ha from wheat production raised by 86% under SWI (Behera et al., 2013). Farmers there traditionally sowed their wheat crop quite densely, using about 175 kg of seed per hectare. With wider plant spacing, the seed rate under SWI was reduced by 95%, to just 7.5 kg/ha while giving a much higher yield.
3. Maize (Zea mays) Together with rice and wheat, maize is the third major cereal crop in the world. In the first trials in Himachal Pradesh in 2009, farmers sowed 1–2 seeds per hill, adding compost and other organic matter to the soil with three soil-aerating weedings. Their average yield of 3.5 tonnes/ha was 75% more than it is produced with conventional methods. Trials were laid out to measure the effects of having different spacings between hills. These trials showed best results by sowing seeds in a grid pattern with 40 × 40 cm spacing. In Assam, where maize yields are usually 3.75–4.5 tonnes/ha, farmers versions of system of crop intensification have given yields of 6.0–7.5 tonnes, with spacing as wide as 30 × 60 cm and with their seed rate reduced by 50% (SeSTA, 2015).

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Conservation Agriculture (CA) – Minimum soil disturbance agriculture

Crop Rotation

Cover Crop

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Conservation agriculture is a set of soil management practices that minimizes the disturbance of the soil's structure, composition and natural biodiversity. Conservation Agriculture is a farming system that prevents losses of arable land while regenerating degraded lands. It maintains a permanent soil cover, minimum soil tillage, and diversification of plant species. CA is a response to sustainable land management, environmental protection and climate change adaptation and mitigation.

CA promotes various management practices such as:

- utilization of green manures or cover crops (GMCC's) to produce the residue cover
- no burning of crop residues
- integrated disease and pest management
- controlled or limited human and mechanical interference in agricultural fields.

When CA practices are used by farmers one of the most important environmental benefits is decrease in fossil fuel use and greenhouse gas (GHG) emissions. (Source: Conservation Agriculture Knowledge Portal)

Minimum mechanical soil disturbance - Reduces soil erosion and preserves soil organic matter. Direct seeding involves growing crops without mechanical seedbed preparation and with minimum soil disturbance. The term direct seeding in CA systems is the same with no-till farming, zero tillage, no-tillage, direct drilling, etc. Planting refers to the accurate placing of large seeds (maize and beans) whereas seeding usually refers to a

mental principle of CA. Cover crops improve the stability of the Conservation Agriculture system, not only on the improvement of soil properties but also promote an improved biodiversity in the agro-ecosystem. Cover crops are beneficial as they:

- Protect the soil during fallow periods.
- Mobilize and recycle nutrients.
- Improve the soil structure and break compacted layers and hard pans.
- Permit a rotation in a monoculture.
- Can be used to control weeds and pests.

Species diversification – Growing different types of crops in crop rotation leads to a diverse soil flora and fauna, as the roots excrete different organic substances that attract different types of bacteria and fungi, which in turn, play an important role in the conversion of these substances into plant available nutrients. Crop rotation has an important phytosanitary function as it checks the carryover of crop-specific pests and diseases from one crop to the next crop via crop residues. A well planned crop rotation promotes good soil structure, provides a diverse range of soil flora and fauna that contributes to nutrient cycling and enhanced plant nutrition, and helps to prevent pests and diseases.

Advantages of Conservation Agriculture:

- Land - Conservation agriculture develops the soil structure and protects the soil against erosion and nutrient losses by maintaining a permanent soil cover and minimizing soil disturbance.
- Labour – As Conservation agriculture requires minimum soil disturbance, use of human labour is minimum.
- Water - Conservation agriculture involve considerably less water use

composition of organic crop residues at the soil surface. The soil fertility is built up over time under conservation agriculture, and less fertilizer amendments are required to achieve optimal yields over time.

- Soil biota - Insect pests and other disease causing organisms are checked by diverse community of beneficial soil organisms, including predatory wasps, spiders, nematodes, mites and beneficial bacteria and fungi. In addition, the burrowing activity of earthworms and other fauna create tiny channels or pores in the soil that facilitate the exchange of water and gases and loosen the soil for enhanced root penetration.
- Economic benefits - Farmers using CA technologies typically reported higher yields (up to 45-48% higher) with fewer water, fertilizer and labour inputs, thereby resulting in higher overall farm profits. (Source: Conservation Agriculture Knowledge Portal)
- Environmental benefits - Conservation agriculture represents an environment friendly set of technologies, as it utilizes the available resources more efficiently than conventional agriculture.
- Equity considerations - Conservation agriculture has the advantage of being reachable to many small-scale farmers who needs to achieve the highest possible yields with limited land area and inputs.
- Active role for farmers - CA methods are most effective when used with skillful management and careful consideration of the various agro ecological factors affecting production on any given farm or field. It should be seen as a set of sound agricultural principles and practices that can be applied either individually or together, based on resource availability and other fac-

Published on 23th July 2016. Eastern Mirror.

ATMA Kikruma organises Agri-allied prog

EMN
DIMAPUR, JULY 23

ATMA Phek Kikruma block in collaboration with KVK Phek organised capacity building and demonstration programme on agri and allied activities at Thipuzu village on July 18. Resource persons were SMS Hannah K. Asangla and SMS T Esther Longkumer KVK Phek. Brief concepts and methods demonstrations on SIR, Direct Seeded Rice (DSR), incorporation of Dhanchia as green manure crop to increase soil fertility, liming to reclaim acidic soils were covered during the day long programme. 30 farmers attended the programme. Meanwhile, BFAC meeting for Kikruma Block was held on the same day where various activities taken up by ATMA Phek were highlighted by BTM Keduwete-ü Lomi. The functions and duties of BFACs, the problems faced by the farming communities were also deliberated during the meeting which was attended by 9 BFAC members.

Published on 24th April 2013.
Nagaland Post.

Krishi Vigyan Kendra Phek

24-04-13

Members of Krishi Vigyan Kendra, Phek planting tree saplings on World Earth Day.

Krishi Vigyan Kendra Porba Phek, on April 22nd celebrated Earth Day at Upper Khomi village in support for environmental protection.

A tree plantation programme was organized to commemorate this very important day. The dwindling forest cover and consequent climate change will have far-reaching impact on human, animal and plant life in the future earth. Villagers were motivated to plant trees to the keep the earth green. Sapling of Khaboo(Ficus hookeri) and Khasi Mandarin were planted on the occasion.

The programme was supported by Rainforestmaker- a voluntary organization with a mission to grow back the Earth's rainforests. Organic Cotton T-Shirts were distributed to the volunteers.

The programme was led by KVK officials Dr Debojyoti Borkotoky Subject Matter Specialist(Animal Sc.) and Mrs Hannah K. Asangla, Subject Matter Specialist(Agronomy). The day long programme ended with a thankful note from Pastor Husapa for volunteering for this noble endeavour and pledged to keep the village green through replanting trees and awareness. He also acknowledged and express gratitude to Programme Coordinator KVK-Phek and Director NRCM for celebrating the event in the village.

NAGALAND POST, DIMAPUR
FRIDAY, SEPTEMBER 9, 2016

'Parthenium awareness week' organised in Phek

Participants of "Parthenium awareness week" after the programme.

DIMAPUR: ICAR-Krishi Vigyan Kendra, Phek organised "Parthenium awareness week" from August 31 to September 6 at KVK premises, initiated with an introduction and significance of Parthenium hysterophorus management by SMS Agronomy, Hannah Krujia.

Krujia spoke on the origin and history and its advantages and disadvantages of the weed crop.

During the course of the days the participants were enlighted with a field visit led by Kenisto Chucha, farm manager to nearby Mithun rearing area, to acquaint them with the plants of Parthenium family. They were advised to uproot the weed and burn if found in crop field and nearby areas.

The participants were enlightened by ACTO Soil Science, T. Esther Longkumer on compost making from Parthenium. Topic on biological control of Parthenium that was taken up by Liza Barua Bharali, SMS Plant Protection who discussed on the role and use of Mexican beetle that controls the weed population to a great extend.

Lecture on integrated Parthenium management was delivered by Rinku Bharali, ACTO Horticulture.

An exhibition on Parthenium was put up at KVK premises through the display of posters and pictures. Debojyoti Borkotoky, SMS Animal Science described on the adverse and toxic effect of Parthenium on animal and human health. The programme concluded with a vote of thanks from T. Esther Longkumer. Altogether 20 youths participated in the week long programme.

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The Morung Express.

Parthenium awareness week observed in Phek

PHEK, SEPTEMBER 7 (MExN): Parthenium awareness week was organised and conducted by ICAR - Krishi Vigyan Kendra, Phek from August 31 to September 6, at KVK Premises. Altogether 20 youths participated in the week long programme.

The programme was initiated with an introduction and significance of Parthenium hysterophorus management by Hannah Krujia, SMS Agronomy. She spoke on the origin and history and its advantages and disadvantages of the weed crop. Though Parthenium is a noxious weed it has health benefits and also enhances crop productivity.

A field visit conducted by Kenisto Chucha, Farm Manager to nearby Mithun rearing area, to acquaint the participants with the plants of Parthenium family, and were advised to uproot the weed and burn if found in crop field and nearby areas.

Participants during the field visit as part of the Parthenium awareness week organised and conducted by ICAR - Krishi Vigyan Kendra, Phek from August 31 to September 6.

The participants were enlightened by T. Esther Longkumer, ACTO Soil Science on compost making from Parthenium. She elaborated how to make compost from this weed and emphasised the importance of nutrient content of the weed which will improve crop growth and yield.

The topic was on biological control of Parthenium that was taken up by Liza Barua Bharali, SMS Plant Protection. She gave emphasis on biological control only as it is environment friendly and economic. She discussed on the role and use of Mexican beetle that controls the weed population to a great extend.

Lecture on integrated Parthenium Management was delivered by Rinku Bharali, ACTO Horticulture. He explained the different methods for integrated management of the weed. Emphasis was laid on cultural as well as biological management as Nagaland being an Organic State. An exhibition on Parthenium was put up at KVK premises through the display of posters and pictures.

On the concluding day, the programme was initiated by Debojyoti Borkotoky, SMS Animal Science. He described on the adverse and toxic effect of Parthenium on animal and human health. The programme concluded with a vote of thanks from T. Esther Longkumer.