"EFFECT OF FERTILIZERS AND INSECTIDES PESTICIDES ON THE YIELD OF RICE"

A project Report in partial fulfilment of the requirement for the Award of the degree of

Submitted to

Submitted by

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DEPARTMENT OF BOTANY

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CERTIFICATE

This is to certify that the project work entitled **"EFFECT OF FERTILIZERS AND INSECTICIDES PESTICIDES ON THE YIELD OF RICE" Dr. BRR Government College Campus, Jadcherla, Mahabubnagar District, Telanagana."** is a bonafide work done by the students of III BZC (TM **A.POOJA, R.RAJESHWARI, N.MANISHA, C.GAYATHRI, C.SHAILAJA** under my supervision for the award of Project Work in Botany, Department of Botany, Dr. BRR Government College, Jadcherla and the work hasn't been submitted to any other College/University either in part nor in full, for the award of any degree.

P. SRINIVASULU
Head, Dept. of Botany

DECLARATION

We hereby declare that the project work entitled with **"Flora of Dr. BRR Government College Campus, Jadcherla, Mahabubnagar District, Telangana."**is a genuine work done by us under the supervision of **Dr. B. Sadasivaiah**, for the Department of Botany, Dr. BRR Government College, and it has not been under the submission to any other Institute/University either in part nor in full, for the award of any degree.

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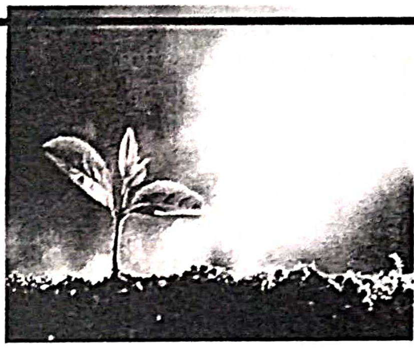
MORPHOLOGY

Morphology Cultivated rice is generally considered a semiaquatic annual grass, although in the tropics it can survive as a perennial, producing new tillers from nodes after harvest (ratooning). At maturity the rice plant has a main stem and a number of tillers. Each productive tiller bears a terminal flowering head or panicle. Plant height varies by variety and environmental conditions, ranging from approximately 0.4 m to over 5 m in some floating rices. The morphology of rice is divided into the vegetative phases (including germination, seedling, and tillering stages) and the reproductive phases (including panicle initiation and heading stages).

Seeds :

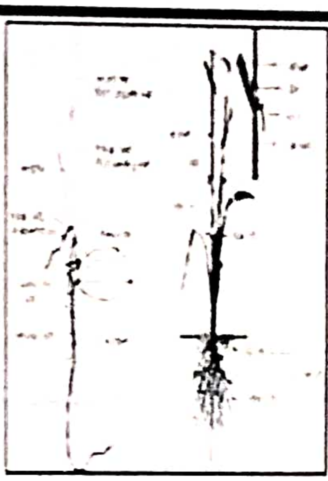
The rice grain, commonly called a seed, consists of the true fruit or brown rice (caryopsis) and the hull, which encloses the brown rice. Brown rice consists mainly of the embryo and endosperm. The surface contains several thin layers of differentiated tissues that enclose the embryo and endosperm. The palea, lemmas, and rachilla constitute the hull of indica rices. In japonica rices, however, the hull usually includes rudimentary glumes and perhaps a portion of the pedicel. A single grain weighs about 10-45 mg at 0% moisture content. Grain length, width, and thickness vary widely among varieties. Hull weight averages about 20% of total grain weight.



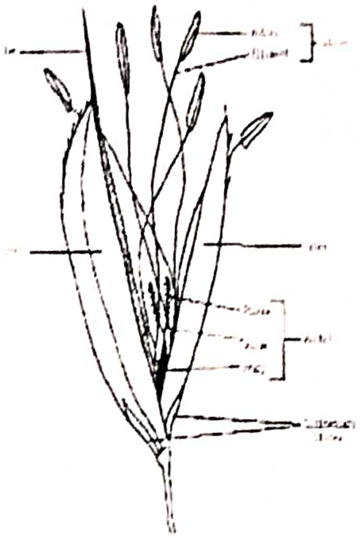
- **Seedlings:**

Germination and seedling development start when seed dormancy has been broken and the seed absorbs adequate water and is exposed to a temperature ranging from about 10 to 40 o C. The physiological definition of germination is usually the time when the radicle or coleoptile (embryonic shoot) emerge from the ruptured seed coat. Under aerated conditions the seminal root is the first to emerge through the coleorhiza from the embryo, and this is followed by the coleoptile. Under anaerobic conditions, however, the coleoptile is the first to emerge, with the roots developing when the coleoptile has reached the aerated regions of the environment. If the seed develops in the dark as when seeds are sown beneath the soil surface, a short stem (mesocotyl) develops, which lifts the crown of the plant to just below the soil surface. After the coleoptile emerges it splits and the primary leaf develops.

- Rice is an essential crop for feeding the populations of South and South East Asia. Rice provides more than 50% of the calories consumed in Bangladesh, Cambodia, Myanmar, Laos, and Vietnam and 20-44% in Thailand, Philippines, Malaysia, India, Nepal and Sri Lanka. Wide yield gaps are still present in farmers' fields in Asia and closing these gaps can contribute to further increases in rice supply to meet future demands. In most Asian countries, rice yields average 3-5 t/ha. Experiments with the intensive use of pesticides has determined that the yield potential of rice varieties in Asia is about 10 t/ha.[4] One recent Study estimated that between 120 and 200 million tons of grain are lost yearly to insects, diseases, and weeds in rice fields in tropical Asia.[14] The mean region-wide rice yield loss due to pests was estimated at 37%.
- There is huge scope for significant increases in rice productivity in Asia through adoption of Good Agricultural Practices particularly judicious use of pesticides. A study of yield-limiting factors in tropical Asian rice fields determined that fungicide, insecticide and herbicide use were all positively associated with higher yields.

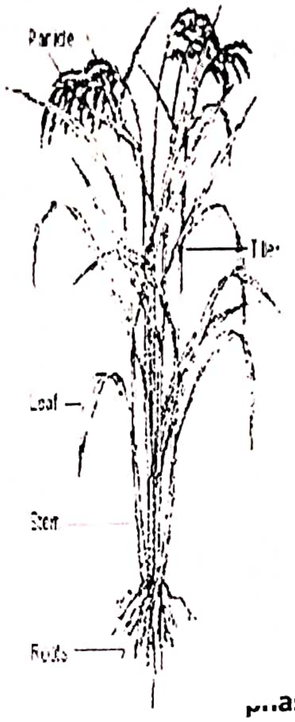


- Tillering plants Each stem of rice is made up of a series of nodes and internodes. The internodes vary in length depending on variety and environmental conditions, but generally increase from the lower to upper part of the stem. Each upper node bears a leaf and a bud, which can grow into a tiller. The number of nodes varies from 13 to 16 with only the upper 4 or 5 separated by long internodes. Under rapid increases in water level some deepwater rice varieties can also increase the lower internode lengths by over 30 cm each. The leaf blade is attached a the node by the leaf sheath, which encircles the stem. Where the leaf blade and the leaf sheath meet is a pair of clawlike appendages, called the auricle, which encircle the stem. Coarse hairs cover the surface of the auricle. Immediately above the auricle is a thin, upright membrane called the ligule. The tillering stage starts as soon as the seedling is self supporting and generally finishes at panicle initiation. Tillering usually begins with the emergence of the first tiller when seedlings have five leaves. This first tiller develops between the main stem and the second leaf from the base of the plant. Subsequently when the 6th leaf emerges the second tiller develops between the main stem and the 3d leaf from the base. Tillers growing from the main stem are called primary tillers. These may generate secondary tillers, which may in turn generate tertiary tillers. These are produced in a synchronous manner. Although the tillers remain attached to the plant, at later stages they are independent because they produce their own roots. Varieties and races of rice differ in tillering ability. Numerous environmental factors also affect tillering including spacing, light, nutrient supply, and cultural practices. Roots that develop from nodes above the soil surface usually are referred to as nodal roots. Nodal roots are often found in rice cultivars growing at water depths above 80 cm. Most rice varieties reach a maximum depth of 1 m or deeper in soft upland soils. In flooded soils, however, rice roots seldom exceed a depth of 40 cm. That is largely a consequence of limited O2 diffusion through the gas spaces of roots (aerenchyma) to supply the growing root tips. Panicle and, styles, and ovary



Development :

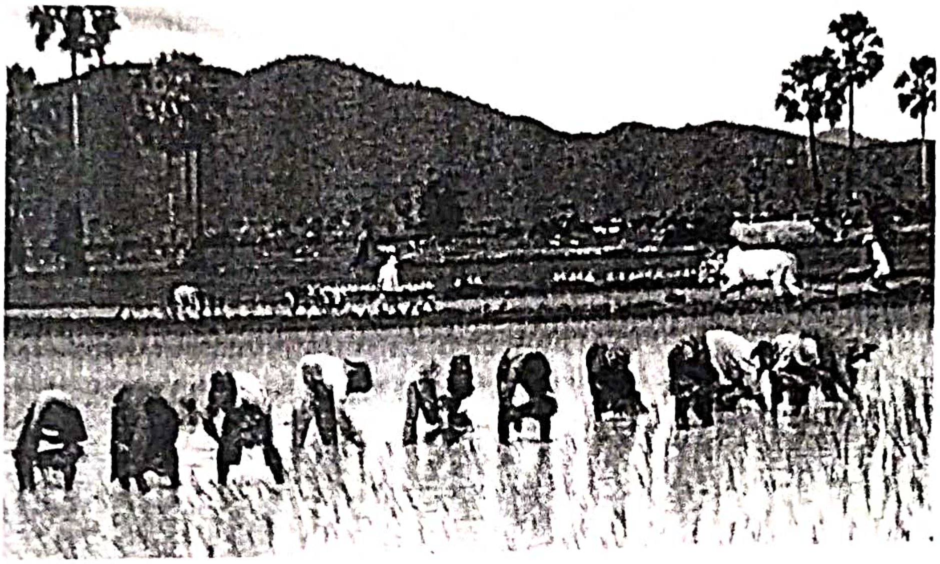
The growth duration of the rice plant is 3-6 months, depending on the variety and the environment under which it is grown. During this time, rice completes two distinct growth phases: vegetative and reproductive. The vegetative phase is subdivided into germination, early seedling growth, and tillering; the reproductive phase is subdivided into the time before and after heading, i.e., panicle exsertion. The time after heading is better known as the ripening period. Potential grain yield is primarily determined before heading. Ultimate yield, which is based on the amount of starch that fills the spikelets, is largely determined after heading. Hence, agronomically it is convenient to regard the life history of rice in terms of three growth phases: vegetative, reproductive, and ripening. A 120-day variety, when planted in a tropical environment, spends about 60 d in the vegetative phase, 30 d in the reproductive phase, and 30 d in the ripening phase. Vegetative phase The vegetative phase is characterized by active tillering, gradual increase in plant height,



Vegetative phase :

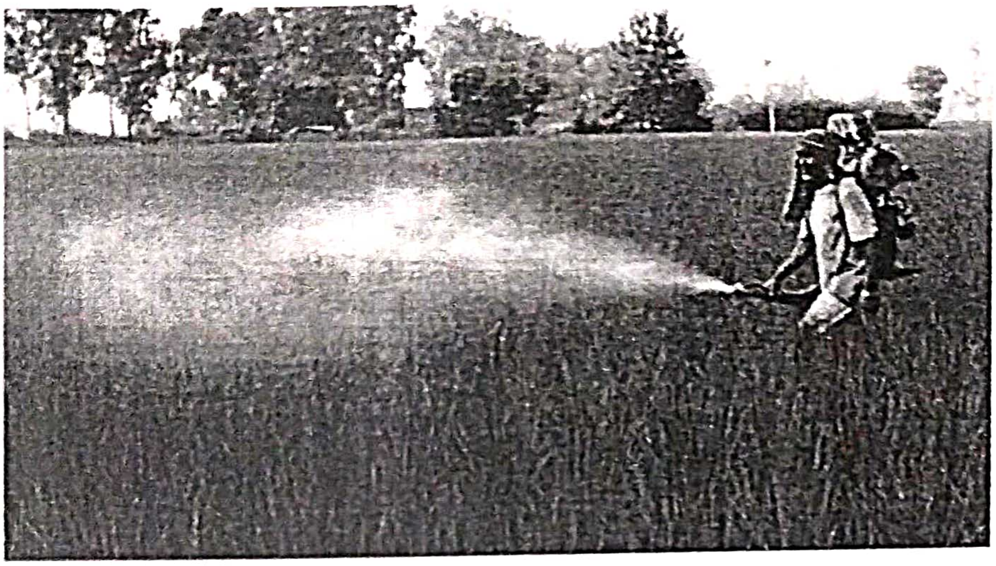
The vegetative phase is characterized by active tillering, gradual increase in plant height, and leaf emergence at regular intervals. Tillers that do not bear panicles are called ineffective tillers. The number of ineffective tillers is a closely examined trait in plant breeding since it is undesirable in irrigated varieties, but sometimes an advantage in rainfed lowland varieties where productive tillers or panicles may be lost due to unfavorable conditions. Reproductive phase The reproductive growth phase is characterized by culm elongation (which increases plant height), decline in tiller number, emergence of the flag leaf (the last leaf), booting, heading, and flowering of the spikelets. Panicle initiation is the stage about 25 d before heading when the panicle has grown to about 1 mm long and can be recognized visually or under magnification following stem dissection. Spikelet anthesis (or flowering) begins with panicle exsertion (heading), or on the following day. Consequently, heading is considered a synonym for anthesis in rice. It takes 10- 14 d for a rice crop to complete heading because there is variation in panicle exsertion among tillers of the same plant and among plants in the same field. Agronomically, heading is usually defined as the time when 50% of the panicles have exserted. Anthesis normally occurs between 1000 and 1300 h in tropical environments and fertilization is completed within 6 h. Only very few spikelets have anthesis in the afternoon, usually when the temperature is low. Within the same panicle it takes 7-10 d for all the spikelets to complete anthesis; the spikelets themselves complete anthesis within 5 d. Ripening follows fertilization, and may be subdivided into milky, dough, yellow-ripe, and maturity stages. These terms are primarily based on the texture and color of the growing grains. The length of ripening varies among varieties from about 15 to 40 d.

RICE CULTIVATION



Since rice is the staple food of Southern India, we at Annam Farms, cater to this widespread demand of the people through our organic paddy crops grown on our own farms. Our dedicated staff prepares the land so that it enables a good harvest at the end. So, what are the steps involved in Paddy cultivation? Let us see all about it in the coming sections of this blog post. **1 - Preparing the land**

Farmers get to work on the fields and will try to finish all the preparations before the rainy season. First, they begin to pull out the weeds so that the main crop would receive all the nutrition from the soil. Once this is done, the field is tilled by buffaloes to a certain inch. We then add natural manure to the land to improve the fertility of the soil. Finally, the land is covered with water for about 2 - 2.5 cm before the seedlings are sown.



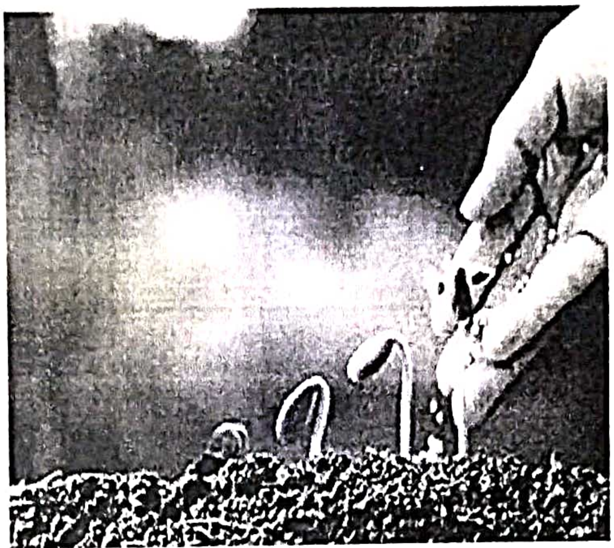
2 - Transplanting the paddy seedlings

- Usually, the seedlings are first grown in a nursery and then transferred to the fields after forty days. In some regions, it is directly sown in the fields. However, the yield from transplanting is significantly higher than that of direct sowing
- **3 - Maintenance of the field**
- Paddy requires utmost attention and regular maintenance. The crop needs to be spaced out so that they derive equal nutrition from the soil. Our farmers will also regulate the water level in the soil depending on the growth of the crop.

4 - Harvesting

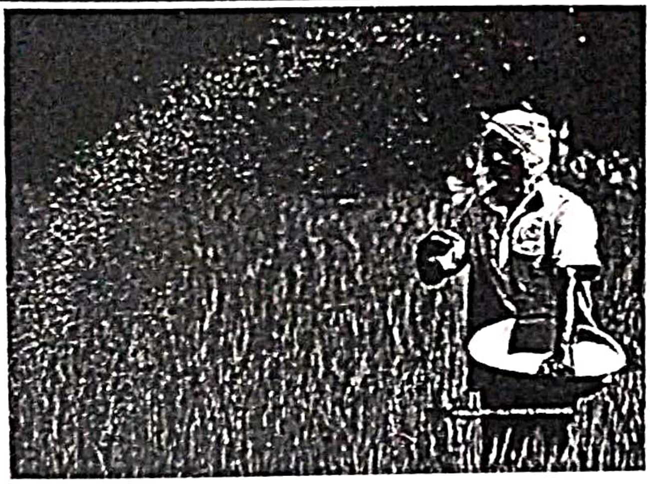
Harvesting is done during the dry season. The farmers use the traditional curved knife and this process is very labor-intensive. Once this process is finished, our farmers will finally separate the rice grains from the husk through threshing, milling, and winnowing.

FERTILIZERS



First of all, you have to take into consideration the soil condition of your field through semiannual or annual soil testing, before applying any fertilization method. No two fields are the same, nor can anyone advise you on fertilization methods without taking into account your soil's test data, tissue analysis and crop history of your field. However, we will list the most common rice fertilization schemes, used by a considerable number of farmers.

A common rice fertilization scheme that is used by a great number of rice farmers involves 2 major fertilizer applications: The first application takes place at roughly the same time with planting or transplanting (or about 20 days later) and the second takes place about 45-60 days after the first application. Many farmers apply 0,5 tons of N-P-K 30-10-10 per hectare at the day of sowing/planting (or 20 days later). About 45-60 days after the first application, they apply 0,2-0,3 tons of N-P-K 40-0-0 or 33-0-0 per hectare. Keep in mind that 1 ton = 1000 kg = 2.200 lbs. and 1 hectare



However, these are just common patterns that should not be followed without making your own research. Every field is different and has different needs. Your rice plants may or may not give higher yields after the application of fertilizers. You can seek advice from a licensed agronomist after conducting a soil analysis.

Nitrogen is the most restrictive nutrient for rice production. Nitrogen is very important for the increase of plant height, leaf size, panicle number and for a high yield per hectare. Rice needs Nitrogen in order to develop an adequate number of panicles. The crucial period in which many farmers apply N is two weeks after transplanting or 21 days after sowing.

Moreover, many farmers proceed to N applications before seeding and flooding the field. Nitrogen application may occur in dry soil which we will irrigate immediately. Alternatively, we can integrate it and flood the field after 3 to 5 days. An early application may also take place, in the form of ammonium. We can apply it onto dry soil, just before the flooding procedure. We should take into consideration that once we applied early N, the field shall be flooded within 5 days. Flood normally integrates N into the soil and protect it from losses. However, keep in mind that every field is different and has different needs.

Nitrogen Deficiency

One of the most common problems in rice production is Nitrogen deficiency. It usually takes place during crucial growth stages (panicle development), when plants need a greater amount of nitrogen.

We can identify these deficiencies by an intense discoloration of the crops. We can manage nitrogen deficiencies by following the measures below.

- Efficient N fertilizer application.
- Sufficient plant spacing is required.
- Proper water management. Many farmers claim that their field should be continuously flooded.
- Control of weeds that compete against rice for N (very important)
- Consulting a local licensed agronomist is suggested.

Nitrogen Excess

Nitrogen application in sufficient amount helps rice grow faster and provide us with high-quality grains. However, many farmers apply a larger amount than the one that rice needs. Excessive nitrogen use can lead to rich growth which attracts a lot of pests. Some farmers can recognize nitrogen excess by looking at the leaves. In most cases, they have an abnormal green color. Furthermore, plants may have thin stems. Farmers can normally prevent nitrogen excess by examining soil nitrogen consistency and then apply sufficient N that meets the needs of rice plants.

Phosphorus (P)

Phosphorus is very important in the early growth stages of rice plants. It contributes to the development of strong roots. Soil pH has a major role in P availability. Many rice farmers claim that the ideal phosphorus availability to rice happens when soil pH is below 6,5 (ask a certified professional Agronomist).

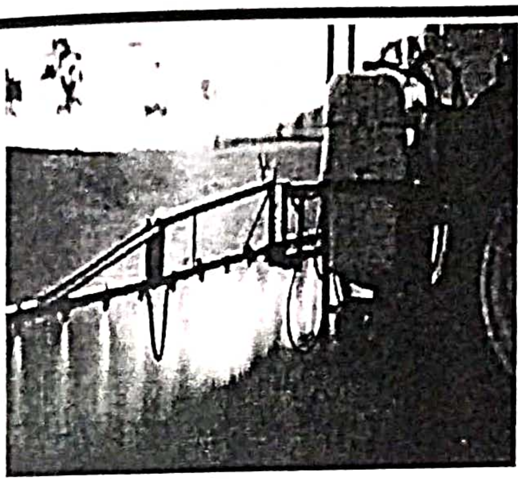
Potassium (K)

Potassium (K) is also very important for achieving good rice yields. Potassium (K) contributes to plants' disease resistance, root enlargement, and thickness, leaf durability, panicle initiation and development. Potassium deficiencies have a great impact on crop growth. Experienced rice farmers claim that they can identify these deficiencies by the following symptoms

PESTICIDES

- Rice is an essential crop for feeding the populations of South and South East Asia. Rice provides more than 50% of the calories consumed in Bangladesh, Cambodia, Myanmar, Laos, and Vietnam and 20-44% in Thailand, Philippines, Malaysia, India, Nepal and Sri Lanka. Wide yield gaps are still present in farmers' fields in Asia and closing these gaps can contribute to further increases in rice supply to meet future demands. In most Asian countries, rice yields average 3-5 t/ha. Experiments with the intensive use of pesticides has determined that the yield potential of rice varieties in Asia is about 10 t/ha.[4] One recent Study estimated that between 120 and 200 million tons of grain are lost yearly to insects, diseases, and weeds in rice fields in tropical Asia.[14] The mean region-wide rice yield loss due to pests was estimated at 37%.[15]
- There is huge scope for significant increases in rice productivity in Asia through adoption of Good Agricultural Practices particularly judicious use of pesticides. A study of yield-limiting factors in tropical Asian rice fields determined that fungicide, insecticide and herbicide use were all positively associated with higher yields.

- **FUNGICIDES**
- .
- Sheath blight is caused by a fungus that lives in the soil; the fungus floats to the top when fields are flooded, contacts rice plants and spreads to adjacent plants. Spread of sheath blight is thus favored by dense crop canopies. The flow of water and nutrients in the rice plant is interrupted and the leaf dies, reducing rice yield. Sheath blight has developed into a major disease only since the intensification of the rice-cropping system with new short-statured, profusely-tillering varieties, high planting densities and an increase in nitrogen fertilization inducing a favorable microclimate for the pathogen. In Malaysia, 15-20% of the total rice area is estimated to be infected with the disease and in 1993, losses of 17-25% occurred.[8] A dramatic increase in sheath blight occurred in Vietnam with 200,000 hectares infected in 1990-91. Losses due to sheath blight are at least 10% in India and in Thailand it can account for more than 20% annual loss.[9] In Bangladesh, contribution of rice yield loss due to sheath blight out of total loss in farmers' fields is about 30%.[10] It has been difficult to breed varieties with a high genetic resistance to sheath blight, so the disease has to be managed through use of chemical fungicides.[9, 10]
- Several fungicides have long been recommended for blast and sheath blight control in Asia. A two-spray program has proven highly effective resulting in 84-88% reduction in blast and 30-34% increase in rice yield.[6] The cost:benefit ratio for fungicide use to control blast has been estimated at 1:7 to 1:12.[7] In tests in India, new fungicides for sheath blight control have resulted in rice yield increase of 20%.



Collectively, rice diseases result in yield reductions of 10-15% in tropical Asia.[15] Sheath blight and blast are present wherever rice is grown; these two diseases are responsible for losses of 5% or more each.

The blast fungus overwinters in rice straw and stubble and spreads rapidly by airborne spores. The pathogen can infect any organ of the rice plant. When it hits the head or neck, blast stops nutrients and water from getting to the kernels. Portions of the grain head will be white in contrast to the green or tan color of healthy grain. This "blasted" appearance is caused by blank grain. Severe infestations lead to large areas of dead plants. In the first recorded outbreak of blast in India in 1918, the loss in rice production was estimated at 69%. Blast epidemics in Malaysia and the Philippines have caused yield reductions of 50-70%.[2] Rice varieties resistant to blast frequently lose their resistance within a few years because of shifts in strains of the fungal population. Fungicide use in rice in South Asia is highest in India and Vietnam where more than75% of the farmers apply.[12] Following epidemics of rice blast in India, the milling industry distributed sprayers and fungicides to farmers. In other South Asian countries, fungicide use on rice is negligible.[12] Farmers and agronomists across the region have not been adequately trained to correctly diagnose the diseases. In Vietnam as a result of trainings in disease diagnosis and fungicide

Weeds flourish in the humid climates of rice fields in South and South East Asia. Without any control, weeds can completely overwhelm the rice crop. The traditional method for weed control in Asian rice fields is hand weeding. Weeding rice adequately requires 30-120 man-days/hectare. Typically, two to three hand weedings are recommended foroptimalweed control. However, especially at the time of peak period of labor demand, weeding is either done late, or skipped, causing drastic losses in rice yield.[16] Some farmers abandon weeding due to heavy infestations, particularly after rains. Farm families typically are unable to do weeding all on their own and need to hire labor.[17] Labor availability on time and the costs are becoming extremely problematic.[17] A survey of rice fields in tropical Asia determined that weeds were the most significant pest factor in reducing yields: rice yields were being reduced by 23% from weeds growing above the rice canopy and by 21% from weeds growing below the rice canopy (figures are not additive, but considered individually).[15] In India, annual loss in rice due to weeds has been estimated at 15 million tons.[20] On average, the gap in rice yields in farmers' fields due to poor weed control in Bangladesh was determined to be 43-51%.[16] The yield gap was as high as 1 t/ha with 30% of farmers losing in excess of 500 kg/ha.[17] As Asian economies have been industrializing, millions of people are migrating from rural to urban areas, creating shortage of workers for hand weeding and increasing the cost of hand weeding even when labor is available. Wages for farm workers in South East Asia have increased; the average wage rate in the 2010s is five times greater than in the 1970s. Increases of 100 to 200% in the current labor price are realistic expectations within the next 5-10 years.[18] Farmers are left with little choice but to reduce labor costs, particularly for the most labor-intensive tasks, such as weeding.[19] Research in India has shown that in rice farms using herbicides, per hectare labor usage was about 43 hours lower, yields were higher by about nine quintals (0.9t) and profits were increased by Rs.3673.[21]

INSECTSIDE

INSECTICIDES

In South and South East Asia rice is grown in warm, humid environments conducive to Zthe survival and proliferation of key insect pests: the yellow stemborer, leaffolders, brown plant hoppers (BPH) and green leafhoppers. Stemborers are ubiquitous throughout rice fields in Asia and cause some damage in every rice field every year. The larvae bore into the stems and eat their way down to the base of the plant hollowing out the stem. Losses from borer damage can reach up to 95%. Leaffolder larvae fold the leaves by stitching the leaf margins and feed by scraping green leaf tissue. Yield losses because of leaffolders range from 63 to 80%. BPH sucks sap from the rice plant causing the plant to dry out, turn brown and die. This condition is called hopperburn and it can cover large patches in rice fields. The brown plant hopper also transmits the ragged stunt and grassy stunt viruses. The green leafhopper is a vector of Tungro virus.

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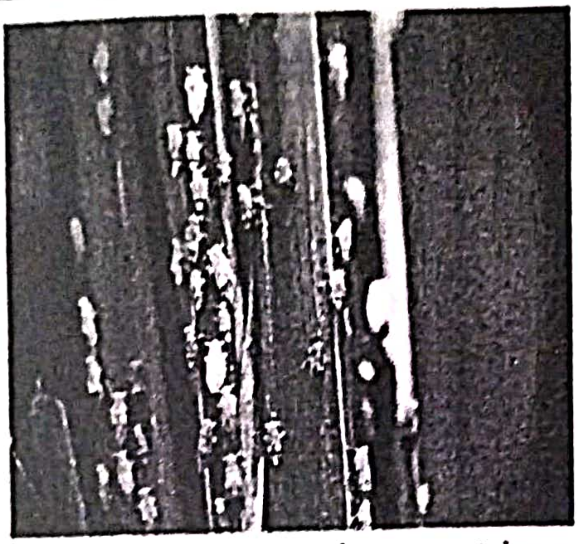
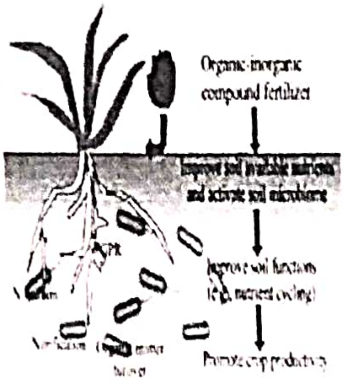
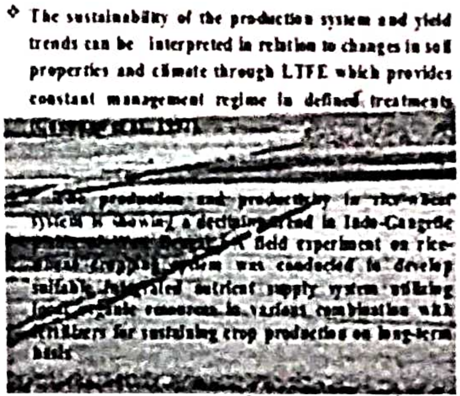


- Historically, stem borers were the most important insect pest of rice causing yield losses of 70% in epidemic years.[25] The introduction of high yield technology in the 1960s involving rice varieties with high tillering ability, denser plant spacing, high fertilizer application and irrigation where farmers planted 2 or 3 rice crops a year provided abundant habitat for leaf hoppers and leaffolders that enabled the populations to reproduce nearly year round. Further, the use of nitrogen fertilizers increased the insects' reproductive potential.[22] The desire to realize the full potential of the new high-yielding varieties led to intensive testing of broad spectrum insecticides. In 117 experiments conducted by IRRI over 15 years, insecticide treated plots yielded 87% higher than the untreated.[23] The benefit/cost ratio varied from 3 to as high as 10.[26] The use of insecticides expanded rapidly in Asia in the 1970s and 1980s. Most Asian governments provided subsidies for insecticide purchase and farmers were required to purchase insecticides along with fertilizers in their loan packages.

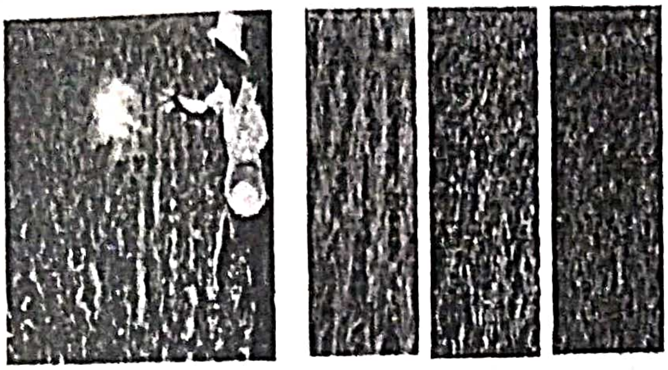
- Rice breeding programs have given priority to the BPH problem. However, rice varieties have succumbed because of the development of BPH biotypes which can destroy the resistant varieties. The first high-yielding rice cultivar with BPH resistance was released in 1973 and was successful for two years. The resistance of varieties introduced in the 1970s and 1980s lasted until 1991. Resistant varieties have not been developed for yellow stemborers.[24]
- Since the 1970s, hundreds of millions of dollars have been spent by international organizations and Asian governments to develop and promote Integrated Pest Management (IPM) techniques for rice insects. An important component has been the training of extension personnel and farmers to diagnose and monitor pest problems in the field and to use insecticides judiciously only when needed. In order to promote the adoption of IPM, Indonesian officials banned 57 broad spectrum insecticides in 1985. The ban left farmers with no foliar insecticides to control stemborers. As a result, over 300,000 people had to be mobilized to destroy egg masses by hand during a late 1990 migration of stem borer moths.

EFFECTS OF FERTILIZERS





Rice quality comprises milling, appearance, cooking and eating and nutritional quality, etc. With the continuous improvement of economic life, people's requirements for rice quality, especially flavor taste and nutritional quality, are becoming stricter. Rice qualities are affected by many factors such as heredity and the environment. The application of fertilizer plays a crucial role in improving rice yield and is also a key factor affecting rice quality . Studies have shown that different fertilizer types, as well as fertilization modes and rates directly affect rice yield and quality . The rice-crab culture system is no exception. In Panjin area, local farmers have accumulated more than 10 years of experience in the fertilization technology of the rice crab culture system . Three representative fertilization modes have been formed and their effects on rice yield and quality of rice-crab culture system need further study. The purpose of this test is to determine a more suitable fertilization mode and amount for producing rice under the rice-crab culture system in Panjin area based on comprehensive measurement of rice yield and quality under the above three fertilization modes.



- Milling quality: was based on the GB/T 17891–1999 (1999) standard to determine the brown, milled, and head rice rates. The rice was shelled two times using a rice sheller (FC2K, Yamamoto, Japan) and rice machine (VP-32T, Yamamoto, Japan) to obtain brown rice and milled rice, respectively, and weighed separately. The head rice rate was measured using the ES-1000 appearance quality tester (Shizuoka, Japan).
- Appearance quality: chalky kernel rate and chalkiness were measured by image processing measurement in GB 1354 using an ES-1000 appearance quality detector (Shizuoka, Japan).
- Cooking and eating quality: the cooked rice soup was cooled to room temperature and the pH of the rice was measured with a PB-10 pH meter (German Sartorius Group). The expansion ratio was measured by the drainage method where 2.5 g of rice was placed in 50 mL of water and the elevated volume was measured. After cooking and draining, the rice was placed in 50 mL of water and the elevated volume was measured. The water absorption rate was measured by weighing 2.5 g of rice and 50 mL of water, cooking, draining, and then reweighing the rice with a filter paper ($M_{\text{after cooking}}$). Water absorption (%) = $M_{\text{after cooking}}$—2.5/2.5 × 100. The cooking time was determined by pressing the cooked rice grains in a hand and determining when there was no hard heart in the middle, and the time was recorded. The taste value score was measured by pressing the cooked rice into a rice cake and measuring the taste with a STA1B taste scoring apparatus (Satake, Japan). The texture characteristics (e.g., hardness, viscosity, and elasticity) were measured by pressing the cooked rice into a rice cake and measuring the textural characteristics of the rice cake using a CT34500 texture analyzer (Brookfield Engineering Laboratories). The probe (TA43 spherical probe) was set at 30 mm above the platform, the test speed was 2.5 mm/s, the test speed was 5 mm/s after the test, the trigger point load was 0.05 N, the target value was 65%, and the cycle was repeated twice. Starch pasting characteristics were measured using a rapid viscosity analyzer. A total of 3 g of milled rice flour was sampled, 25 mL of distilled water was added and this mixture was placed into an Rapid viscosity analyzer (RVA-4) (Newport Scientific, Australia) for determine the starch pasting characteristics.

- Nutritional quality: protein and amylose content were determined with a fixed grating near-infrared automatic analyzer (DA7200, Perten, Sweden). The brown rice samples were tiled and filled the sample trays, and the brown rice mode was selected for automatic scanning. The crude fat was determined by Soxhlet extraction using GB5009.6–2016, with a sample of 1.00 g of brown rice flour. The starch content was determined by pretreatment of the rice sample using the acid hydrolysis method from the GB 5009.9–2016 standard, then 10 mL of the sample solution was added to 490 mL of distilled water, 0.5 mL of phenol, and 2.5 mL of concentrated sulfuric acid, and the mixture was placed in a test tube. After cooling, the absorbance was measured at 490 nm using an ultraviolet-visible spectrophotometer (UV762 Shanghai Dingke Scientific Instrument Co., Ltd.).
Nutritional quality: protein and amylose content were determined with a fixed grating near-infrared automatic analyzer (DA7200, Perten, Sweden). The brown rice samples were tiled and filled the sample trays, and the brown rice mode was selected for automatic scanning. The crude fat was determined by Soxhlet extraction using GB5009.6–2016, with a sample of 1.00 g of brown rice flour. The starch content was determined by pretreatment of the rice sample using the acid hydrolysis method from the GB 5009.9–2016 standard, then 10 mL of the sample solution was added to 490 mL of distilled water, 0.5 mL of phenol, and 2.5 mL of concentrated sulfuric acid, and the mixture was placed in a test tube. After cooling, the absorbance was measured at 490 nm using an ultraviolet-visible spectrophotometer (UV762 Shanghai Dingke Scientific Instrument Co., Ltd.).

1. Rice grain yield

The rice yields are shown in Table 1. Compared with CK, FP1, FP2, and OPT showed significant increases in rice yield, increasing by 52.0%, 64.0%, and 75.5%, respectively. However, there was no significant difference in the rice yield obtained among the three different fertilization modes. The highest yield was obtained by OPT, which was 10 040 kg·hm^{-2}.

Fertilizer management	Grain yield (t ha^{-1})		Straw yield (t ha^{-1})		Grain harvest index (%)	
	Kajla	BRRI dhan29	Kajla	BRRI dhan29	Kajla	BRRI dhan29
RCM	5.15	5.95	8.34	8.87	38.15	39.95
STB	5.35	6.22	8.41	7.69	38.98	44.93
BRF	5.68	6.58	8.75	7.72	39.42	45.96
FFP	5.36	5.92	8.74	7.70	37.99	43.27
$LSD_{0.05}$ for fertilizer (F)	0.45	0.56	NS	0.94	NS	3.58
F × Variety	0.69		0.93		3.06	
CV (%)	14.3		11.7		8.9	

Fertilizer management	Grain yield (t ha^{-1})		Straw yield (t ha^{-1})		Grain harvest index (%)	
	Kajla	BRRI dhan29	Kajla	BRRI dhan29	Kajla	BRRI dhan29
RCM	5.15	5.95	8.34	8.87	38.15	39.95
STB	5.35	6.22	8.41	7.69	38.98	44.93
BRF	5.68	6.58	8.75	7.72	39.42	45.96
FFP	5.36	5.92	8.74	7.70	37.99	43.27
$LSD_{0.05}$ for fertilizer (F)	0.45	0.36	NS	0.94	NS	3.58
F × Variety	0.69		0.93		3.06	
CV (%)	14.3		11.7		8.9	

2. Rice quality characteristics

2.1. Rice milling quality and appearance quality

The rice milling quality and appearance quality results are shown in Table 2. The brown rice and head rice rates of FP1 increased significantly by 5.2% and 22.8%, respectively, compared with CK. The other two fertilization modes were not significantly different from CK. FP2 had the highest milled rice rate; however, there was no significant difference in the milled rice rates among the different fertilization modes. For the rice appearance quality, the chalky kernel rate of rice after the different fertilization treatments decreased significantly compared with those obtained by CK. The three fertilization modes of FP1, FP2, and OPT decreased by 15.5%, 15.7%, and 11.8% respectively. There was no significant difference between the chalkiness. FP2 had the lowest chalky kernel rate and chalkiness.

- 2.2. Rice cooking and eating quality
- The rice cooking and eating quality results are shown in Figs Figs11–3. There was no significant difference in the cooking quality and texture characteristics of rice treated with different fertilization (Figs (Figs11 and and3).3). Compared with CK, the FP1 treatment significantly reduced the appearance score of rice (Fig 2A). The three different fertilization modes increased the hardness score of rice, and reduced the viscosity score and balance score, with significant differences among FP1, OPT, and CK (Fig 2B–2D). However, there was no significant difference between FP2 and CK (Figs (Figs11–3). Therefore, the FP2 fertilization mode did not cause significant changes in the cooking and eating quality of rice, whereas the FP1 and OPT fertilization modes significantly reduced the eating quality.

EFFECT OF FERTILIZERS ON THE YIELD OF RICE

REVIEW OF ARTICLE

- Review articles initially identify the scope and aim. If submitting the review article to a journal, the author must familiarise themselves with the theme of the journal as well as its conditions for submission. Some journals only accept review articles whereas others strictly publish original research.Once the scope of the journal the author intends to submit to is identified, then identify the own personal scope and aim for the article. Experienced author, Angus Crake emphasises the need to define a scope that is “manageable, not too large or small” and to “focus on recent advances if the field is well established”. This equates to a succinct, refreshing review article that adds a new perspective to the field whilst still being grounded in academia.

- When finding sources, it is ideal to search through multiple databases and search engines. This ensures a wide berth of knowledge that presents multiple perspectives and allows for a reasonably balanced article. Some disciplines encourage the use of certain search engines. For example, science-based review articles heavily utilise Medline, Embase and CINAHL.
- The title, abstract and keywords chosen bring awareness to the audience of the article, and should describe what the article is about. Search engine optimisation is important when publishing articles within a discipline where the literature is already saturated.
- Like most academic articles, a review article includes an 'abstract' at the start. The 'Abstract' section of the review article should include: a synopsis of the topic being discussed or the issue studied, an overview of the study participants used in the empirical study being reviewed, a discussion of the results found and conclusions drawn by the scholars conducting the study, an explanation of how such findings have already or could potentially impact the theory and practice within the relevant discipline.[9] Within this section, context and the relevance of the review is included. The jargon used will depend on the intended audience.

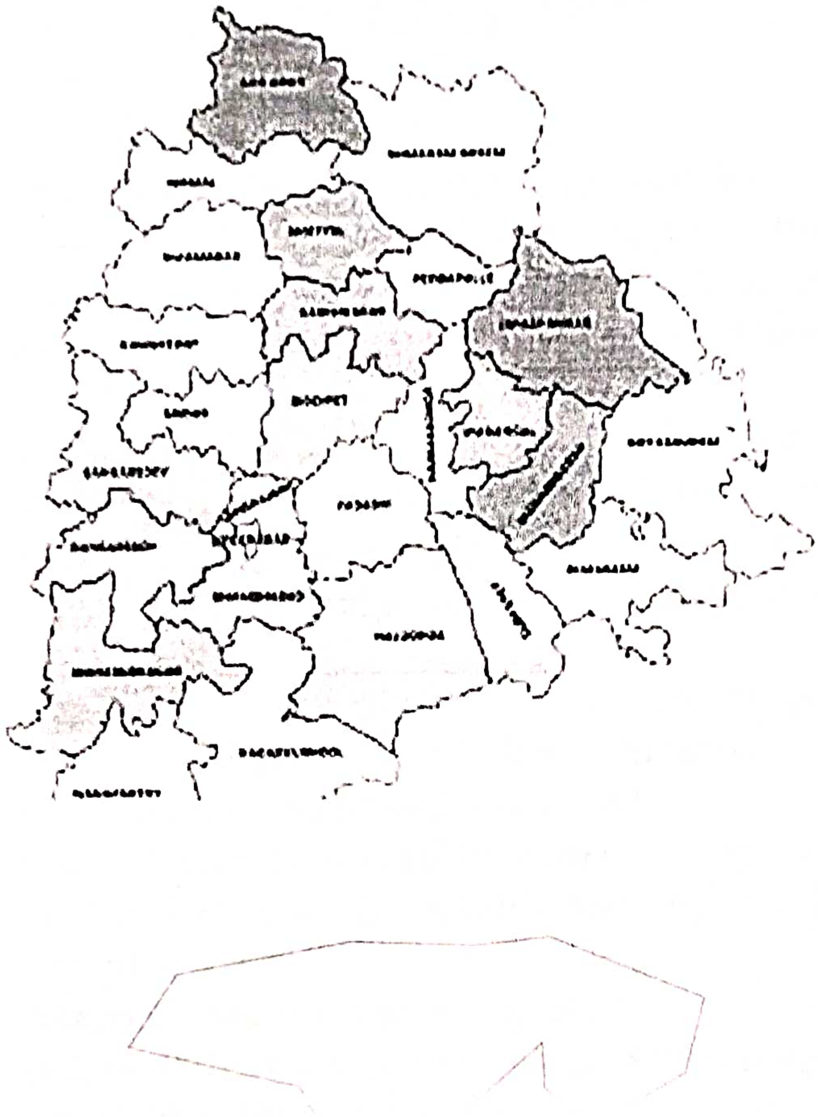
- The discussion section of the article presents multiple perspectives, stating limitations and potential extensions of the study being reviewed.[4] Also, within this section, similarities and dissonances among studies are stated.
- The presentation of both the shortcomings and advancements of the research papers under review is important for comprehensiveness.[4] Daft (1985, p 198) emphasised this by saying *"Previous work is always vulnerable. Criticising is easy, and of little value; it is more important to explain how research builds upon previous findings rather than to claim previous research is inadequate and incompetent."*[10] Within this section of the review article is the suggestion of improvements and areas to further extend the research in reference.[11] The bibliography included at the end of review articles is equally important as it leads to further information on the study being discussed and is a way for academics and students alike to further their research. These are secondary sources.[12] Meyers and Sinding say,
- *"... The review selects from these (research) papers, juxtaposes them, and puts them in a narrative that holds them together... clearly the best reviews are not only concerned with what was done in the past, but also present a means to sculpt the future.*

- Review articles in academic journals analyze or discuss research previously published by others, rather than reporting new experimental results.[19][17] An expert's opinion is valuable, but an expert's assessment of the literature can be more valuable. When reading individual articles, readers could miss features that are apparent to an expert clinician-researcher. Readers benefit from the expert's explanation and assessment of the validity and applicability of individual studies.[20]
- Review articles come in the form of literature reviews and, more specifically, systematic reviews; both are a form of secondary literature.[21] Literature reviews provide a summary of what the authors believe are the best and most relevant prior publications. Systematic reviews determine an objective list of criteria, and find all previously published original papers that meet the criteria; they then compare the results presented in these papers.
- Some academic journals likewise specialize in review of a field; they are known as review journals.
- The concept of "review article" is separate from the concept of peer-reviewed literature. A review article, even one that is requested or "peer-invited", will be either peer-reviewed or non-peer-reviewed depending on how submissions are treated.
- Writing review articles can be a popular task among students. At times, teachers from schools and universities assign this task

STUDY AREA

There are about 400houses in our village. Our village population is 1200-1500 mostly the main occupation of agriculture 85% of people depending on agriculture in which 80% of people grow paddy. There are mostly black regard farms in our village, which are suitable for paddy crop. Due to the pond, the there is a pond in the distance of the houses with all the paddy crop under the pond.

It is planted twice a year. Due to the high number of drains and bores in the village, rice is high and crop yield are high. Our village people depend on the ponds for cultivation of other crops with rice cotton and maize. Based on the ponds, most of our village people are harvesting paddy.
People are gaining high yield through rice crop cultivation and providing grain for the population themselves.



Map data ©2022

METHODOLOGY

We have selected buddasamudram village for this project. In this village we have 5 people surveyed together. Our friends A. Pooja, C. Gayathri, N. Manisha, R. Rajeshwari, C. Shailaja we are conducting the project together with 5 others.

Most of the paddy crop in our village is cultivated on more acres so those people have been selected for this project because of how much. Profit they have made in their paddy crop and how much. Damage the farmers have been using. Asked about the risks.

We have prepared the following question for project

1) How many acres of paddy are being cultivated?
2) How much fertilizer is applied per acre?
3) What kind of fertilizer is used to improve crop yield. ?
4) Which of the following is suitable for organic fertilizers and chemical fertilizers?
5) What chemicals are used by the pest?

There are about 400houses in our village. Our village population is 1200-1500 mostly

RESULTS

S.NO	NAME OF THE FARMER	AVERAGE FERTILIZER USED 1 ACRE	USE OF PESTICIDES	CROP YIELD 1 ACRE
1	VENKAT RAMULU	UREA=50KG	LAMDA	19QUINTAL
		DAP=20:20:13=38KGS	MONA	
2	SRINU	UREA=36KGS	ASTAS	18Q
		DAP=68KGS	MONA	
3	SATHYANARAYANA	UREA=45KGS	PROPIPASS	17Q
		20:20:13=50KGS	CHLOROPIRIPASS	
4	BHASKAR	DAP=83KGS	BELAMINE	18Q
		UREA=92	LAMDA	
		K=20KGS	MONA	
5	ANJANEYULU	20:20:13=40KGS	CHLOROPYRIOS	18Q
		UREA=40KGS	BELAMINE	
6	SRISAILAM	20:20:13=50KGS	BELAMINE	19QUINTAL
		UREA=66KGS	LAMDA	
7	ANJILAIAH	UREA=44KGS	PROPIPASS	21Q
		20:20:13=58KGS	MONA	
8	NARAYANA	UREA=50KGS	MONA	20Q
		K=75KGS	BELAMINE	
9	MALLAIAH	UREA=50KGS	CHLOROPIRIPASS	19QUINTAL
		20:20:13=50KGS	MONA	
10	MALLESH	DAP=50KGS	MONA	20Q
		UREA=36kgs	PROPIPASS	
		K=12KGS	BELAMINE	
11	NARESH	K=45KGS	MONA	22Q
		DAP=50KGS	PROPIPASS	
		UREA=33KGS	LAMDA	
12	SHANKARAIAH	DAP=37KGS	MONA	18Q
		K=43KGS	LAMDA	
			BELAMINE	
13	CHANDRAIAH	DAP=50KGS	MONA	19QUINTAL
		UREA=45KGS	LAMDA	
		K=20KGS		
14	SHANKAR	UREA=45KGS	ASPAD	20Q
		DAP=50KGS	MONA	
		K=20KGS	LAMDA	
15	NARSIMULU	DAP=60KGS	MONA	20Q
		UREA=50KGS	LAMDA	
16	SATHAIAH	DAP=50KGS	CHLOROPILIPASS	21Q
		K=12KGS	PROPIPASS	
		UREA=36KGS		
17	RAMULU	20:20:13=25KGS	MONA	18Q
		UREA=33KGS	PROPIPASS	
		K=20KGS		

RESULTS

0	NAME OF THE FARMER		USE OF PESTICIDES	CROP YIELD 1 ACRE
		USED 1 ACRE		
	VENKAT RAMULU	UREA=50KG	LAMDA	19QUINTAL
		DAP=20:20:13=38KGS	MONA	
	SRINU	UREA=36KGS	ASTAS	18Q
		DAP=68KGS	MONA	
	SATHYANARAYANA	UREA=45KGS	PROPIPASS	17Q
		20:20:13=50KGS	CHLOROPIRIPASS	
	BHASKAR	DAP=83KGS	BELAMINE	18Q
		UREA=92	LAMDA	
		K=20KGS	MONA	
	ANJANEYULU	20:20:13=40KGS	CHLOROPYRIOS	18Q
		UREA=40KGS	BELAMINE	
	SRISAILAM	20:20:13=50KGS	BELAMINE	19QUINTAL
		UREA=66KGS	LAMDA	
7	ANJILAIAH	UREA=44KGS	PROPIPASS	21Q
		20:20:13=58KGS	MONA	
	NARAYANA	UREA=50KGS	MONA	20Q
		K=75KGS	BELAMINE	
9	MALLAIAH	UREA=50KGS	CHLOROPIRIPASS	19QUINTAL
		20:20:13=50KGS	MONA	
0	MALLESH	DAP=50KGS	MONA	20Q
		UREA=36kgs	PROPIPASS	
		K=12KGS	BELAMINE	
1	NARESH	K=45KGS	MONA	22Q
		DAP=50KGS	PROPIPASS	
		UREA=33KGS	LAMDA	
12	SHANKARAIAH	DAP=37KGS	MONA	18Q
		K=43KGS	LAMDA	
			BELAMINE	
13	CHANDRAIAH	DAP=50KGS	MONA	19QUINTAL
		UREA=45KGS	LAMDA	
		K=20KGS		
14	SHANKAR	UREA=45KGS	ASPAD	20Q
		DAP=50KGS	MONA	
		K=20KGS	LAMDA	
15	NARSIMULU	DAP=60KGS	MONA	20Q
		UREA=50KGS	LAMDA	
16	SATHAIAH	DAP=50KGS	CHLOROPILIPASS	21Q
		K=12KGS	PROPIPASS	
		UREA=36KGS		
17	RAMULU	20:20:13=25KGS	MONA	18Q
		UREA=33KGS	PROPIPASS	
		K=20KGS		

18	SHANKAR	DAP=50KGS	LAMDA	19QUINTAL
		UREA=50KGS	MONA	
19	MURALAIAH	DAP=50KGS	BELAMINE	19Q
		UREA=50KGS	PROPIPASS	
20	YADAIAH	20:20:13=25KGS	ASTAS	17Q
		UREA=33KGS	PROPIPASS	
21	A.SATHYAM	20:20:13=100KGS	CHLOROPIRIPASS	37Q
		UREA=100KGS	PROPIPASS	
22	A.SHANTHAMMA	DAP=50KGS	MONA	18Q
		UREA=50KGS	ASTAS	
			CHLOROPIRIPASS	
23	MALLAIAH	17:17:17=50KGS	MONA	18Q
		UREA=45KGS	CHLOROPIRIPASS	
		DAP=50KGS	PROPIPASS	
24	A.SRINU	20:20:13=45KGS	LAMDA	19Q
		UREA=50KGS	PROPIPASS	
			STOP POWDER	
25	NARSIMHA	DAP=50KGS	CHELAMANE	18Q
		K=45KGS	MONA	
			LAMDA	
26	ANJANEYULU GOUD	K=50KGS	LAMDA	23Q
		DAP=50KGS	ASTAS	
		UREA=35KGS	CHELAMANE	
27	SHANKARAIAH	DAP=50KGS	CHELAMANE	21Q
		K=45KGS	LAMDA	
		UREA=36KGS	MONA	
28	BALAMANI	28:28:0=50KGS	MONA	20Q
		UREA=45KGS	LAMDA	
		K=45KGS		
29	PARANDHAMULU	DAP=50KGS	LAMDA	18Q
		K=43KGS	MONA	
			EXCELLENT	
30	BALRAJU	28:28:0=50KGS	CHELAMANE	31Q
		UREA=100KGS	CHLOROPORIPASS	
			PROPIPASS	
31	VENKATNARAYANA	UREA=50KGS	ASTAS	18Q
		DAP=60KGS	CHLORIPIRIPASS	
			CHELAMANE	
32	SHIVAIAH	UREA=50KGS	ASTAS	22Q
		20:20:13=50KGS	CHLOROPIRIPASS	
			PROPIPASS	
33	VENKATAIAH	UREA=66KGS	LAMDA	19Q
		20:20:20=50KGS	PROPIPASS	
			STOP POWDER	
34	MALLESH	UREA=40KGS	CHELAMANE	18Q
		20:20:13=50KGS	CHLOROPIRIPASS	

5	VENKATAIAH	20:20:13=100KGS	MONA	36Q
		UREA=50KGS	ASTAS	
			LAMDA	
6	RAMULU	DAP=83KGS	CHELAMANE	18Q
		UREA=93KGS	CHLOROPIRIPASS	
			PROPIPASS	
7	RAMANJANEYULU	DAP=68KGS	CHELAMANE	36Q
		UREA=36KGS	CHLOROPIRIPASS	
		K=31KGS	PROPIPASS	
8	ANJANEYULU	UREA36KGS	LAMDA	
		DAP=68KGS	ASTAS	
		K=31KGS	MONA	
9	SRISHAILAM	K=45KGS	CHLORIPIRIPASS	23Q
		DAP=50KGS	PROPIPASS	
		UREA=35KGS		
0	PULLAIAH	UREA=50KGS	ASTAS	70Q
		K=75KGS	CHLOROPIRIPASS	
			PROPIPASS	
1	MANIDEEP	UREA=45KGS	CHELAMENE	28Q
		DAP=50KGS	PROPILOOS	
2	RAMESH	DAP=50KGS	ASTAAS	25Q
		UREA=45KGS	MONA	
3	SAIBABA	DAP=50KGS	ASTAS	20Q
		UREA=45KGS	CHLOROPASS	
			PROPIPASS	
4	VIRAJ	20:20:13=50KGS	LAMDA	18Q
		UREA=100KGS	MONA	
5	SANDEEP	DAP=50KGS	PROPIPASS	21Q
		UREA36KGS	MONA	
6	KRISHNAREDDY	K=50KGS	LAMDA	23Q
		DAP=50KGS	MONA	
		UREA=45KGS		
7	MANIKANTA	DAP=37KGS	CHLOROPIRIPASS	18Q
		K=43KGS	LAMDA	
8	JAINGAIAH	17:17:17=50KGS	MONA	32Q
		DAP=50KGS	ASTAS	
9	RAMESH	UREA35KGS	ASTAS	32Q
		DAP=50KGS	MONA	
		K=20KGS	LAMDA	32Q
0	PRAVEEN KUMAR	DAP=50KGS	MONA LAMDA	
		K=20KGS		
1	ANAND	UREA50KGS	ASTOP	18Q
		DAP=45KGS	CHLOROPIRIPASS	
2	RAVI	UREA35KGS	CHLOPIRIPASS	30Q
		DAP=50KGS	STOP POWDER	
		K=20KGS		

3	SUMAN	20:20:13=25KGS	MONA	19Q
		K=33KGS	CHLOROPIRIPASS	
		UREA=25KGS		
4	SAI KIRAN	DAP=100KGS	CHLOPIRIPASS	19Q
		UREA=100KGS	PROPIPASS	
55	SRINUVASULU	DAP=50KGS	LAMDA	20Q
		UREA=50KGS	CHLOROPIRIPASS	
56	SHEKHAR	DAP=83KGS	CHLOROPIRIPASS	18Q
		UREA=93KGS	LAMDA	
7	RAMANJANEYULU	DAP=83KGS	CHLOROPIRIPASS	18Q
		UREA=83KGS	LAMDA	
58	RAVI	DAP=83KGS	CHLOROPIRIPASS	18Q
		UREA=80KGS	LAMDA	
9	SRIKANTH	UREA=45KGS	MONA	33Q
		DAP=90KGS	ASTOP	
0	VARUN	UREA=93KGS	MONA	20Q
		DAP=93KGS	CHLOROPIRIPASS	
1	NARSIMULU	DAP=75KGS	ASTOP	20Q
		UREA=50KGS	LAMDA	
2	VIKRAM	20:20:13=40KGS	CHLOROPIRIPASS	18Q
		UREA=40KGS	LAMDA	
3	ARUN KUMAR REDDY	UREA=93KGS	LAMDA	18Q
		DAP=90KGS	CHLOROPIRIPASS	
4	KRISHNAIAH	DAP=75KGS	CHELAMENE	19Q
		UREA=76KGS	LAMDA	
5	VIKRAM NATH	DAP=68KGS	MONA	19Q
		UREA=36KGS	LAMDA	
		K=31KGS	CHLOROPIRIPASS	
	THIRUPATHAIAH	20:20:13=38KGS	LAMDA	19Q
		UREA=50KGS	MONA	
	MOHAN	20:20:13=50KGS	PROPIPASS	20Q
		UREA=50KGS	CHLOROPIRIPASS	
	VINOD KUMAR REDDY	UREA=50KGS	MONA	20Q
		K=75KGS	PROPIPASS	
	SRINUVASULU	UREA=44KGS	PROPIPASS	22Q
		K=75KGS	ASTOP	
			MONA	
	PARAMESH	20:20:20=50KGS	CHELAMENE	19Q
		UREA=66KGS	LAMDA	
			ASTOP	
	VIJAY	DAP=50KGS	PROPIPASS	21Q
		UREA=636KGS	CHELAMENE	
		K=40KGS		
	VISHAL REDDY	K=45KGD	LAMDA	22Q
		DAP=50KGS	MONA	
		UREA=33KGS		

KIRAN	20:20:13=25KGS	PROPIPASS	18Q
	UREA=33KGS	MONA	
	K=45KGS	CHLOROPIRIPASS	
NARESH	DAP=37KGS	LAMDA	18Q
	K=43KGS	CHLOROPIRIPASS	
		ASTOP	
SHIVAKUMAR	DAP=50KGS	LAMDA	19Q
	UREA=50KGS	CHLOROPIRIPASS	
	K=33KGS		
MALLESH	20:20:13=70KGS	LAMDA	18Q
	UREA=60KGS	MONA	
		ASTOP	
SRIKANTH	UREA=45KGS	MONA	20Q
	DAP=60KGS	ASTOP	
	K=35KGS	CHLOROPIRIPASS	
SRINATH KUMAR	UREA=50KGS	MONA	20Q
	DAP=60KGS	ASTOP	
		LAMDA	
VENKATAIAH	UREA=66KGS	LAMDA	19Q
	K=40KGS	STOP POWDER	
	20:20:13=50KGS	CHELAMENE	
BHARATH	UREA=50KGS	ASTOP	
	DAP=40KGS	PROPIPASS	19Q
	K=45KGS	CHLOROPIRIPASS	
VENKATESH	UREA=33KGS	MONA	20Q
	DAP=30KGS	CHLOROPIRIPASS	
	K=45KGS		
RAGHU	UREA=85KGS	LAMDA	20Q
	DAP=30KGS	CHLOROPIRIPASS	
SARATH	UREA=80KGS	LAMDA	18Q
	DAP=30KGS	CHLOROPIRIPASS	
MAHESH	UREA=75KGS	ASTOP	
	20:20:13=40KGS	LAMDA	18Q
		CHLOROPIRIPASS	
LINGAIAH	20:20:13=40KGS	LAMDA	20Q
	UREA=80KGS	MONA	
RANGAIAH	UREA=45KGS	LAMDA	20Q
	K=50KGS	MONA	
RAMESH	UREA=43KGS	MONA	20Q
	DAP=73KGS	LAMDA	
MALLAIAH	UREA=85KGS	CHLOROPIRIPASS	19Q
	K=50KGS	MONA	
SRIKANTH	20:20:13=100KGS	LAMDA	17Q
	UREA=60KGS	STOP POWDER	
RAJU	UREA=45KGS	LAMDA	20Q
	DAP=60KGS	CHLOROPIRIPASS	

SURESH	20:20:13=50KGS	MONA	20Q
	UREA=75KGS	CHLOROPIRIPASS	
THIRUPATHI	UREA=88KGS	LAMDA	18Q
	DAP=45KGS	MONA	
SRINIVAS	20:20:13=50KGS	LAMDA	19Q
	UREA=70KGS	STOP POWDER	
PULLAIAH	UREA=50KGS	LAMDA	20Q
	K=50KGS	PROPIPASS	
KRISHNAIAH	UREA=80KGS	MONA	18Q
	DAP=60KGS	CHLOROPIRIPASS	
MALLESH	UREA=70KGS	MONA	20Q
	K=50KGS	LAMDA	
ANJANEYULU	UREA=70KGS	MONA	20Q
	DAP=50KGS	ZERAPIRIPASS	
VENKATAIAH	UREA=85KGS	MONA	18Q
	DAP=60KGS	CHLOROPIRIPASS	
RANJITH	20:20:13=50KGS	LAMDA	20Q
	UREA=80KGS	MONA	
YADAIAH	UREA=70KGS	LAMDA	20Q
	K=50KGS	PROPIPASS	

DISCUSSION

One farmer applied chemical fertilizers on 10 acres of land and the farmer got good yield. Another, the farmer did not get much profit.

One out of every 10 people in our village used chemical fertilizers to get good yields in the rice crop but the other two farmers did not use good fertilizers due to the use of 'inferior' seeds and those two did not get crop benefit loss. Thus the lower yields came. We asked some farmers and took it.

In this way we surveyed the farmers in our village i.e. in the Buddasamudram some of the farmers responded well to what we asked some of the farmers did not want to tell the farmers how to harvest the crop. What kinds of fertilizers are used?

Farmers use good fertilizers so that the crop grows well. What kinds of pesticides are used on rice to control pests and weeds?

How much urea, D. A. P potassium is used.

We know how much urea is used per acre if one thousand is used. D. A. P foot flour is used like potassium.

There is not enough water for the rice crop. Or without water the crop will not grow properly and the crop will not grow properly. So the more water you put in, the better the crop will yield.

In this way some of the farmers gave answers to what we asked about the rice crop and some did not want to say.

Farmers were asked how much urea, D. A. P potassium was used for the crop as urea is used for higher rice growth. Farmers benefited from crop yields as they used more chemical fertilizers and planted more bags of oats. Got good yields.