Crop Management Practices

An Agricultural Extension Initiative of INDORAMA

Wheat

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Introduction

Nigeria produces approximately **1 million metric tonnes of Wheat per year**. Wheat is one of the world's most important Food Crops. It is believed that wild varieties of Wheat first grew in the Middle East. Wheat was one of the first plants to be cultivated. It was grown about 11,000 years ago.

The total area under Wheat in the world is around 225.62 million ha. with a production of 685.6 million tonnes (2009- 10). The normal world productivity is 3039 kg/ha. It provides about 20% of total food calories for the human race. The major Wheat growing countries in the world are USSR, USA, China, India, Canada, Australia, France, Turkey, Bangladesh and Pakistan.

Climate Requirement

Wheat crop has wide adaptability. It can be grown not only in the tropical and sub-tropical zones, but also in the temperate zone and the cold tracts. The optimum temperature range for ideal germination of Wheat seed is 20-25 C.

Soil

Soils with a clay-loam or loam texture, good structure and moderate water holding capacity are ideal for Wheat cultivation. Care should be taken to avoid very porous and excessively drained oils. Soil should be neutral in its reaction.

Seed Treatment

It is suggested that seed should be treated with Vitavax, Bavistin, Thiram or Agrosan GN @ 2.5 gm per kg seed for the management of loose smut, ergot, flag smut and head scab disease.

To protect the Crop from Termites and White Ants particularly in rain-fed area, treatment is suggested with Endosulphan 35EC or Chlorpyriphos 20 EC @ 700 ml per 100 kg of seed by mixing in 5 liter of water and spraying over the seed followed by seed drying overnight before sowing, Only healthy seeds of right cultivar suitable for a particular locality should be selected for sowing.

Seed rate: Timely sown- 100 kg/ha.

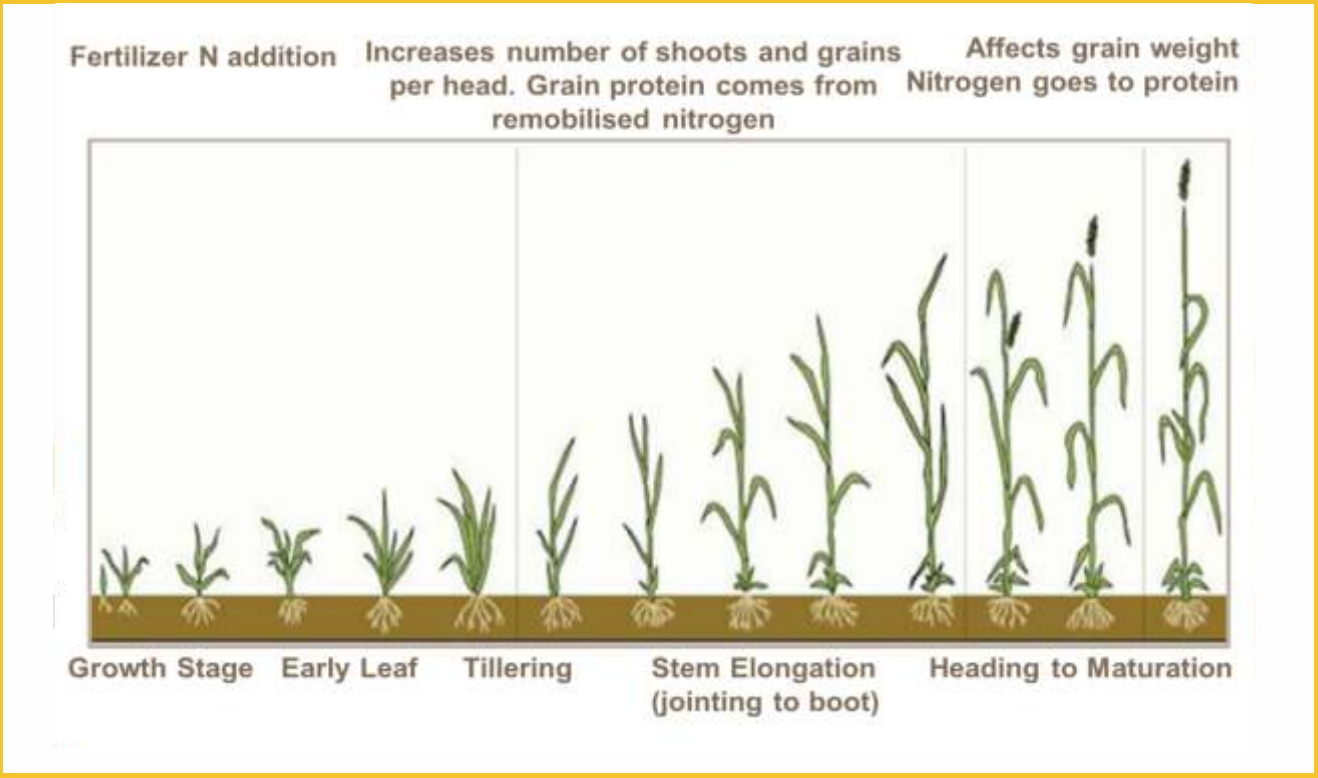
Fertillizer Doses

High Yielding Varieties- 120:60:40 kg NPK/ha (follow soil test or local recommendation)

Method of Fertilizer application:

In case of dwarf timely sown varieties and medium and heavy soil, application of half dose of Nitrogen and full dose of P&K should be basal, dressed below 5 cm of the seed in furrows. The remaining half quantity of Nitrogen should be top dressed in two split doses.

In light soils, Nitrogen will be more efficient, where two-third of Nitrogen and full amount of



P&K are used basal, dressed below 5 cm of the seed in furrows, the remaining quantity of Nitrogen should be top dressed at in 2 split application, one-third after first irrigation and remaining one-third after second irrigation.

Sulphur:

In some Wheat growing areas, particularly where Rice –Wheat crop rotation is continuously taken, the deficiency of Sulphur is being visualised. The Sulphur deficiency can be managed by application of Fertilizers like Super Phosphate.

Zinc:

Among micronutrients, Zinc (Zn) is the most common. In most cases, application of 25 Kg Zinc Sulphate per ha. is sufficient to meet the Zn demands of Rice as well as subsequent Wheat.

Weed Management

For narrow leaved weeds:

Apply Pendimethalin (Stomp) @ 1.0 kg a.i. /ha, 2 to 3 days after sowing (pre-emergence), followed by Isoproturon (Tolkan/ Graminon/Arelon) @ 0.75 kg a.i./ ha, 30-35 days after sowing or Metaxuron (Dosanex/ Hexamar/ Hilnex) @ 1.5 kg a.i./ha 30-35 days after sowing or Leader @33 g at 35 days after sowing or Topic @400 g/ha at 35 days after sowing

For broad-leaved weeds:

Apply 2,4-D @0.4kg a.i./ha at 30-35 days after sowing. For mixed population of narrow and broad leaved weeds, mix Isoproturon and 2,4-D at the recommended doses of each or Isoguard-plus @1.2 kg a.i./ ha 30-35 days after sowing.

First irrigation should be given at the crown root initiation stage for better development of crown roots. This is most critical stage for irrigation.

Pest Management:

If cutworms attack is found, apply Chlorpyriphos 20 EC @ 0.8-1.0 kg per ha in irrigation water. The attack of termite is also found at this stage. In the standing crop, use 2.5 litre per ha of Chlorpyriphos 20 EC or Endosulfan 35 EC 2.5 litre along with irrigation water.

Yield:

When cultivation of high yielding dwarf varieties of wheat is done with improved scientific methods, they produce about 45- 55 qtl of grain per hectare under irrigated conditions and 20-25 qtl per hectare under rainfed conditions. For safe storage, grain should be cleaned and dried well in sun for a few days so that moisture content of grain comes down to 10-12 percent.

Deficiency Chart of Micronutrients

Boron: Discoloration of leaf buds. Breaking and dropping of buds

Sulphur: Leaves light green. Veins pale green. No spots.

Manganese: Leaves pale in color. Veins and venules dark green and reticulated

Zinc: Leaves pale, narrow and short Veins dark green. Dark spots on leaves and edges.

Magnesium: Paleness from leaf edges. No spots Edges have cup shaped folds. Leaves die and drop in extreme deficiency.

Phosphorus: Plant short and dark green. In extreme deficiencies turn brown or black. Bronze colour under the leaf.

Calcium: Plant dark green. Tender leaves pale. Drying starts from the tips. Eventually leaf bunds die.

Iron: Leaves pale. No spots. Major veins green.

Copper: Pale pink between the veins. Wilt and drop.

Molybdenum: Leaves light green/ lemon yellow/ornge. Spots on whole leaf except veins. Sticky secretions from under the leaf.

Potassium: Small spots on the tips, edges of pale leaves. Spots turn rusty. Folds at tips.

Nitrogen: Stunted growth. Extremely pale color. Upright leaves with light green/yellowish.Appear burnt in extreme deficiency.

THE COLOUR REPRESENTED ARE INDICATIVE. THEY MAY VARY FROM PLANT TO PLANT