

SAWAH TECHNOLOGY FOR RICE PRODUCTION

AT THE NATIONAL WORKSHOP OF FADAMA PROGRAMME COORDINATOR (ABUJA) ON 27TH JANUARY, 2010

SAWAH DEFINITION


SAWAH IS TECHNICALLY DEFINED AS A BUNDED AND WELL LEVELLED RICE FIELD WITH AN INLET FOR IRRIGATION AND AN OUTLET FOR DRAINAGE. IT INVOLVES BUNDING, PUDDLING, LEVELLING AND SMOOTHENING TO ENSURE THAT RICE PLANT IS SUPPLIED WITH ADEQUATE AMOUNT OF WATER AND SOIL NUTRIENT

SAWAH REQUIREMENT

REQUIREMENT OF SAWAH TECHNOLOGY ARE

SAWAH REQUIREMENT

SITE SELECTION: THE TYPE OF LAND REQUIRED FOR SAWAH IS LOWLAND, FLOODPLAINS, INLAND BASINS, INLAND VALLEYS AND COASTAL SWAMPS.



CONT...

WATER SOURCE (S) FOR SUITABLE SAWAH SHOULD BE GREATER THAN 10LIT/SEC. FOR MORE THAN 5 MONTHS OF THE YEAR. SLOPE FOR SUITABLE LAND SHOULD BE <3% GRADIENT, WHEREAS HIGHER GRADIENT CAUSES FRAGMENTATION AND LOW MEAN PLOT SIZE.

SAWAH REQUIREMENT

(2) SAWAH SYSTEM DESIGN: THIS INVOLVES PROPER SURVEY AND LAYOUT FOR THE SAWAH FIELD



LAND DEVELOPMENT

(1) CANAL CONSTRUCTION FOR IRRIGATION AND DRAINAGE.



LAND DEVELOPMENT

(2) DYKES/WEIRS CONSTRUCTION FOR WATER MANAGEMENT.



LAND DEVELOPMENT

(3) BUND MAKING- MAKING CONTINUOUS ROWS OF HEAPS TO DESCRIBE THE PERIMETER OF EACH BASIN GREATER THAN OR EQUAL TO 0.01 Ha AT THE SAME ELEVATION.



What is power tiller?

The power tiller is a multipurpose hand tractor designed primarily for rotary tilling and other operations on small farms. (Fashola, Ademiluyi et. al 2007)

Power tiller is the only power driven tool that is effectively being used for "Sawah" activities currently in Nigeria and Ghana.

It can carry out the following operations:

- Ploughing, Puddling, Levelling and Smoothing. It can also be used for transportation and powering post harvest equipments



TILLAGE OPERATIONS

PLOUGHING



TILLAGE OPERATIONS

PUDDLING

THIS IS A CULTIVATION PRACTICE IN WHICH A FIELD IS FLOODED WITH WATER A NIGHT OR MORE BEFORE.



TILLAGE OPERATIONS

LEVELLING



THIS OPERATION GIVES THE BASIN A LEVELED SURFACE WHICH MAKES ACCESS TO AND DISTRIBUTION OF WATER EVEN ALL AROUND A GIVEN PLOT



TILLAGE OPERATIONS

SMOOTHENING

THIS INVOLVES THE CREATION OF SMOOTH SURFACE ON THE BASIN FOR EVEN DISTRIBUTION OF A FILM OF WATER



A WELL PREPARED SAWAH BASIN




AGRONOMY

NURSERY DEVELOPMENT



AGRONOMY

TRANSPLANTING



OTHER AGRONOMIC PRACTICES

- SEEDLING
- SPACING
- PLANT POPULATION
- FERTILIZER/FERTILITY MANAGEMENT
- WEED CONTROL

AGRONOMIC PRACTICE

WEED CONTROL:



WATER MANAGEMENT

IRRIGATION PRACTICE

DRAINAGE

COMPARISON OF SAWAH WITH TRADITIONAL SYSTEM

SAWAH	TRADITIONAL SYSTEM
• RELATIVELY HIGH YIELD, > 5 TONS/Ha	• LOW YIELD, < 2 TONS/Ha
• REQUIRES LAND DEVELOPMENT	• RELIES ON NATURAL LANDFORM
• PLOUGHING CARRIED OUT USING POWER TILLER	• MANUAL SCATTERING OF MOUNDS
• PUDDLING CARRIED OUT FOR PROPER PULVERIZATION	• NO PUDDLING OPERATION
• NURSERY ESTABLISHMENT, FOLLOWED BY TRANSPLANTING	• DIRECT SOWING, BROADCASTING
• DEFINED PLANT SPACING OPERATION	• PLANT SPACING UNDEFINED
• TILLERING IS PROFUSE	• LOW TILLERING
• HIGH FERTILITY MANAGEMENT	• LOW FERTILITY MANAGEMENT
• WATER CONTROL IS HIGH	• MINIMAL WATER CONTROL
• MAINLY LOWLAND WITH <3% GRADIENT	• LESS EMPHASIS ON LAND TOPOGRAPHY

SAWAH	TRADITIONAL SYSTEM
• 70% WEED CONTROL ACHIEVABLE BY WATER MANAGEMENT	• WEED CONTROL MAINLY BY CULTURAL PRACTICE

SAWAH HYPOTHESES

“The pre-requisite of green revolution in West Africa is low-land sawah eco-technology which improve rice ecology”.

“Sustainable rice productivity of low-land sawah is more than ten times that of upland rice field, if appropriate low-lands are selected, developed and managed”.

SAWAH TESTIMONIES

GHANA: Rice production under sawah technology increased from less than 0.1 ton per hectare to 5.0 tons per hectare in two districts in Ghana within four years. (*Buri et al, 2008*).

NIGERIA: Average paddy yield in Bida has increased from <2.0t/ha to >3.5 t/ha in fields of farmers who adopts sawah within six years (*Ademiluyi, 2009*).

TYPES OF SAWAH

PREDOMINANTLY BASED ON SOURCE OF WATER, SAWAH CAN BE TYPEFIED INTO:

- ❖ RAIN FED
- ❖ SPRING TYPE
- ❖ PUMP TYPE
- ❖ INTEGRATED
- ❖ DYKE AND CANAL TYPE

SOME POSITIVE POINTS OF SAWAH

- Sawah brings about marked improvement in rice yield.
- Sawah brings increased income to farmers who adopt it.
- Twenty million ha of sawah can produce additional food for more than 300 million people
- Twenty million ha of lowland sawah development will lead to the restoration of

SAWAH ADOPTION IN NAKALA UN MILLENIU VILLAGE PAMPAIDA. OFF ZARIA-KANO HIGHWAY



CLEAR CUT DIFF. IN PERFORMANCE. FOREGROUND=SAWAH RICE FIELD, BACKGROUND=TRADITIONAL RICE FIELD



EXPANSE OF SAWAH FIELDS AT E.P.O. SOGI NIGER STATE



SAWAH FIELDS AT NASSARAFU, READY FOR TRANSPLANTING




WARM RECEPTION FOR SAWAH AT SHABA-MALIKI

Progress review meeting between Sawah researchers and indigenous rice farmers who adopted Sawah in a suburb of Bida, Niger State.



POWER TILLER

- A LOW COST BUT HIGH VALUE INPUT IN SAWAH TECHNOLOGY.




SAWAH SAMPLER GROUP AT NAKALA

NAKALA FARMERS RECEIVE SAWAH TECHNOLOGY WITH ENTHUSIASM TO BETTER THEIR YIELD



ILORIN SAWAH DEVELOPMENT

100 DAYS OLD RICE AT ILORIN SAWAH SITE



SAWAH TECHNOLOGY TAKING HOLD IN ASHANTI GHANA

