Cassava Matters

Study identifies eight most 'troublesome' weeds affecting cassava farmers in Nigeria

A weed infested cassava field

Researchers working at the International Institute of Tropical Agriculture (IITA) and national partners have identified eight major weeds undermining the yield of cassava and hurting the incomes of farmers in Nigeria.

In a study published in **Tropicultura** (a peer reviewed journal) and titled: *Assessment of Weeds of Cassava and Farmers' Management Practices in Nigeria,* the researchers found *Euphorbia heterophylla, Imperata cylindrica, Aspilia africana, Panicum maximum, Chromolaena odorata, Commelina benghalensis, Digitaria horizontalis,* and *Rottboellia cochinchinensis* as the most troubling weeds in cassava farming systems.

These findings are useful for smallholder farmers and companies seeking solutions to weed menace and targeting specific agroecological zones in the country.

The study was authored by F. Ekeleme, G. Atser, A. Dixon, S. Hauser, D. Chikoye, P. M. Olorunmaiye, G. Sokoya, J. Alfred, Moses C. Okwusi, D.S. Korieocha, Adeyemi O. Olojede, Toye Ayankanmi and S.T.O. Lagoke.

Conclusions from the study followed field evaluation of weeds and management

practices conducted in 200 cassava farms in three agroecologies in Nigeria. Four states were involved in the agroecologies, which are noted for cassava cultivation and where the bulk of Nigeria's 56 million tons of cassava come from. The states are Abia, Benue, Oyo and Ogun.

Lead researcher, Prof Friday Ekeleme (IITA Scientist) said the study identified "four distinct clusters depicting variation in weed species composition among the agroecologies," pointing out that soil pH and silt content, fallow length, cultivation method, and weed management method contributed to the variation in species composition.

In the Humid Forest zone (Abia and other areas in the South East), the study found *Ageratum conyzoides*, *A. africana*, *Cyperus rotundus*, *C. odorata,* and *P. maximum* as the five most important weeds.

For the Derived Savanna zone (Oyo, Ogun and other areas in South West), *Tridax procumbens*, *I. cylindrica*, *C. odorata*, *Cyperus diffusa,* and *E. heterophylla* were identified by farmers and field evaluation as the five most important weeds. In the SGS zone Southern Guinea Savanna (Benue, Northern

part of Oyo and areas in the North Central), the most five important weeds were *T. procumbens*, *E. heterophylla*, *I. cylindrica*, *R. cochinchinensis,* and *C. benghalensis*.

Farmers' management of these weeds also varied across ecological zones, suggesting that weed management strategies in cassava should be focused on agroecological zones, the study found.

In the Humid forest, hoe-weeding (51.2%) and slashing (43.0%) with machetes were the predominant methods of control. Herbicide use was high in the Southern Guinea Savanna and medium to high in the Derived Savanna (26.3-42.2%).

The study concludes that there was the need for education to increase farmers' knowledge of the problematic of weeds and to improve both their choice of appropriate herbicides and their safe use is critical to effective and efficient weed management in cassava.

This publication came out from the work down by the IITA-managed Cassava Weed Management Project (CWMP), which is currently running in the framework of the African Cassava Agronomy Initiative (ACAI).

www.cassavamatters.org

Tackling child labor in cassava through improved weed control

Weeds are major constraints to cassava production in Africa, contributing to yield reduction and placing a huge burden on the lives of farmers, especially women and children.

Because cassava is a long duration crop, women often stoop for hundreds of hours to weed and keep an hectare of cassava clean for an annum. In some cases, children are withdrawn from school to help their parents to weed, a practice that compromises the education of children and undermines their future.

However, the gloomy side of weeds in cassava is changing and becoming brighter, thanks to researchers from IITA working under the Cassava Weed Management Project (CWMP) / and the African Cassava Agronomy Initiative (ACAI).

In the last five years, the team has developed an integrated weed control package combining best-bet agronomic practices and the use of environmentally friendly herbicides in a kit known as the Six Steps to Cassava Weed Management.

The package is now being disseminated to help improve the livelihoods of farmers. Furthermore, the team has joined forces with the National Agency for Food and Drug Administration and Control (NAFDAC)—a regulator in Nigeria— and trained 659 spray service providers in communities in Abia, Benue, Ogun, and Oyo state.

The spray service providers comprise young men who already exist in local communities, but are now being empowered on the safe use and application of herbicides.

During the training, which had both practical and theoretical sessions, participants were taught safety and correct use of herbicides, and the use of best-bet agronomic practices in cassava farming systems. There was also

A weed-free cassava field

a practical session on calibration using knapsack sprayers. A breakdown of trained participants across states showed that Abia had 105 participants, Benue had 101 participants, Ogun had 122 participants, and Oyo had 331 participants.

Through this approach, the researchers are addressing the issue of child labour as well as building local capacities among youth to deal with the problem of weeds. Moreover, the approach is helping to provide sustainable jobs for young people in local communities. The Assistant Director for NAFDAC in Ogun state, Pharm Linda J. Halim described the training of spray service providers as a step in the right direction. She commended IITA-CWMP/ ACAI for organizing the training, stressing that it would raise farmers' consciousness on the safe use of herbicides, create jobs, protect and preserve the environment, and improve livelihoods.

Some of the spray service providers who participated in the training described the training as a 'life-saving event.'

"Most of us spray herbicides without personal protective equipment, and sometimes we use herbicides' containers for storing water or cooking oil. Through this training, we have discovered that these are wrong practices because empty containers of herbicides

contaminate either the water or cooking oil, which affects our health," farmer Emmanuel Tur said.

"If I go home, I will tell my wife and other members of the community to dispose of empty containers of herbicides properly," he added.

Another farmer, Rachel Olanipekun said the training demonstrated the must-haves of any spray service provider.

"We have learnt how to protect ourselves, and I thank IITA for training us. This training is an eye-opener for all of us," she added.

Alfred Dixon, Project Leader for the Cassava Weed Management project, said the feedback from participants was exciting.

"Through the training, we saw farmers making commitment in terms of behavioral change. This makes me happy," he said.

Apart from NAFDAC, the trainings were conducted with the support of the National Root Crops Research Institute (NRCRI) Umudike, Federal University of Agriculture Abeokuta (FUNAAB), and the Federal University of Agriculture Makurdi (FUAM) and the Agricultural Development Programs (ADPs).

Nigeria's directorate of extension service to integrate AKILIMO recommendations for cassava farmers

The Department of Agricultural Extension Services (DAES) under the Federal Ministry of Agriculture and Rural Development in Nigeria will partner with ACAI project to disseminate and use the AKILIMO recommendations for agronomy advice given to farmers by extension agents allied to the government.

ACAI will provide agronomy content developed under the AKILIMO suite of decision support tools that will be integrated into the planned trainings across Nigeria for cassava farmers. DAES Director Frank Kudla and Assistant Director Ngozi Odunze hosted ACAI Projects Scaling Specialist Thompson Ogunsanmi and Monitoring, Learning and Evaluation Specialist Theresa Ampadu-Boakye at the FMARD offices in Abuja for the talks.

The IITA team made presentations on the

research background by the ACAI project, the development of AKILIMO, outputs, capabilities and benefits of using the tools at farmer level and the gaps that the tools will address. AKILIMO suite of decision support tools provides tailored agronomy advice for cassava farmers to optimize their income from investments they have made in their farms. Properly applied recommendations together with basic good agronomic practices will help farmers increase both their yield and make smart investment decisions in their cassava farming.

Director Kudla noted the significant role that the AKILIMO tools will play in improving the production of cassava in Nigeria. Kudla said ACAI is welcome to collaborate with DAES and the National Agricultural Extension and Research Liaison Services (NAERLS) to make the new training materials on cassava agronomy available to extension agents.

AKILIMO will also be integrated in the farmer helpline through the short code messages and interactive video response technology that DAES and NAERLS is in the process of developing. Speaking after the meeting Theresa appreciated the DAES warm reception of the AKILIMO tools as positive and pragmatic approach toward solving pressing issues in the cassava value chain.

"The directorate has also agreed that join the efforts to review the existing extension manual and integrate specific aspects of AKILIMO in the document." Said Theresa. The meeting was first of several levels of discussions that will see collaboration between IITA through the ACAI project with DAES and NAERLS intensified with a common objective to improve cassava agronomy.

Source: *AKILIMO UPDATES*

Tanzanian Extension agents leverage videos to scale Six Steps to Cassava Weed Management & Best Planting Practices tool

Mwantumu Omari, IITA-ACAI Scaling Officer for Tanzania, taking participants through one of the training sessions

Fifteen extension agents drawn from four zones in Tanzania have been trained on the use of videos to scale out agronomic recommendations developed by the International Institute of Tropical Agriculture-managed African Cassava Agronomy Initiative (ACAI). The zones were Southern, Eastern, Lake zone and Zanzibar.

The training also focused on the Six Steps to Cassava Weed Management & Best Planting Practices use case of AKILIMO.

The training which took place before the outbreak of coronavirus in Africa (26 -28 February 2020) involved the use of rechargeable mobile projectors.

Less than a month after the training, the extension agents conducted step-down trainings in 24 communities reaching 831 farmers.

The training of extension agents was conducted by IITA-ACAI team including Godwin Atser, IITA-ACAI Digital Extension & Advisory Services Specialist; Frederick Baijukya, IITA-ACAI Country Representative for Tanzania; Thompson Ogunsanmi, IITA-ACAI Scaling Specialist; and Mwantumu Omari, IITA-ACAI Scaling Officer for Tanzania.

Atser took participants through the theory behind the Six Steps to Cassava Weed Management & Best toolkit, highlighting some of the common mistakes farmers make in weed control.

Participants were also taught the basics of facilitation and effective video presentation and how to engage farmers and achieve positive behavioral change.

The training was both theoretical and practical. The first part involved the extension agents carrying out roleplays. The second part was a visit to a rural community where the extension agents put to practice what they have learned.

Dr Baijukya commended the training methodology and took the extension agents to a planning session where milestones and timelines where set and agreed. He also called on the extension agents to

be committed to their jobs to justify the investments put on them.

Dr Ogunsanmi and Mrs Omari took participants on the use of monitoring, evaluation and learning tools.

At the end of the training, the extension agents rated the training as very good and called on IITA-ACAI to continue the good work.

A Tanzanian extension agent showing a video to a group of women farmers

3

Training of trainers as part of AKILIMO scaling strategy

ACAI officials conducting a training of trainers event on the field

ACAI project uses capacity building activities for the project partners as part of the scaling strategy for the AKILIMO tools to reach a wider audience within the cassava growing areas. Through training of trainers (ToTs), representatives from the partnering organizations' extension network are given trainings on the practical use of the AKILIMO tools, methods of how train others and basic practices to apply in cassava farming.

The ToTs are the foundation for the subsequent scaling activities to influence the adoption of the AKILIMO tools and facilitate their use at extension agent and farmer levels. Beginning late February, IITA agronomists led by ACAI project coordinator Christine Kreye and Stefan Hauser have

carried out series of trainings in Anambra, Oyo and Ogun states in Nigeria for partners involved in the dissemination of AKILIMO.

In Anambra, ACAI team trained participants on how to interpret AKILIMO recommendations from printable guides, maps and the accompanying tables. The training covered the use of AKILIMO recommendation for fertilizer application in cassava and intercropping cassava with maize. Participating organizations were the Sasakawa Africa Association (SG2000), Notore, Psaltry and FUNAAB which is one of ACAI's research partners in the NARS. The NARS partners, FUNAAB and NRCRI, backstop ACAI's partner organizations in step-down trainings to their extension agents.

Meanwhile ACAI Scaling Specialist Thompson Ogunsanmi on the other hand organized ToTs on effective dissemination strategies in Edo and Oyo States with Extension Agents and State Coordinators of Oyo State Cassava Growers' Association (OYSCGA) in Oyo, and Psaltry International Limited, SG2000 and Notore Chemical Industries Limited in Edo. Participants were trained on how to carry out step down training to field extension agents and farmers using ACAI developed training tools including training videos, fertilizer

rates flyers and farmers worksheets. Saburi Adekunbi was also involved in handling the Monitoring, Evaluation and Learning (MEL) aspect of the training

The trainings in Oyo and Ogun states included the AKILIMO recommendations for applying the best agronomic practices and scheduled planting. These recommendations help farmer plan to plant and harvest their cassava during seasons improve the quality of starch and promise better market prices. According to Christine Kreye the trainings have also provided a platform for partners to examine the approaches proposed by ACAI and offer suggestions on improving the process. "This is a participatory and inclusive process; we are sharing knowledge from different backgrounds then agree on the best way to apply AKILIMO recommendations as the way forward." Said Christine.

The trainings have strongly featured good agronomic practices that are standard in order to experience full benefits of any AKILIMO recommendation. After the training, partners are expected the carry out step down trainings for farmers and cassava producers within their domains.

Source: *AKILIMO UPDATES*

ACAI to prioritize scaling and dissemination of AKILIMO in project's 2020 activities

ACAI Project Coordinator, Dr. Pieter Pipers addressing the ACAI team and partners at a retreat

Promoting and facilitating the use of AKILIMO tools will take center stage for ACAI project activities across Nigeria and Tanzania in 2020. This is after the ACAI coordinating team of IITA staff met in Nairobi for a planning retreat in January.

Top on the agenda of the meeting was to speed up the development of and implementation of the scaling strategy and the tools needed to advance the process. The weeklong event included a status review of field research activities, status of the AKILIMO

app development and cassava agronomy content integration for digital partners.

Tools being developed for dissemination activities were reviewed and earmarked for revisions and completion whenever necessary. 2020 is the final year of the project implementation after 5 years of intensive research and development of the AKILIMO decision support tools. ACAI project was designed to address the cassava agronomy knowledge gap and improve cassava production in sub Saharan Africa. ACAI

core team meet every January to draw a joint annual calendar of events in what has become a goal setting trend geared toward achieving the overall project objectives.

An exhaustive list of deliverables was developed with delegated roles for what in store for the year 2020. Look out for our AKILIMO weekly updates to keep up with what is happening in the cassava agronomy sphere.

Source: *AKILIMO UPDATES*