PELUM ZAMBIA

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SAVE OUR ENVIRONMENT

The government has challenged farmers to ensure environmental sustainability by adopting sustainable farming practices.

SEED DIVERSITY

Seed plays an important role as the initiator of life. To a farmer, the seed is a source of life, food, and a connection to one's cultural heritage.

AGROECOLOGY FARMER VOICES

CLIMATE CHANGE FARMER TIPS

ABOUT PELUM ZAMBIA

Participatory Ecological Land Use Management (PELUM) Zambia is part of a wider PELUM Association network found in East and Southern Africa. Established in 1998 as a member-based Civil Society Organisation under NGO ACT Number 16 of 2009, PELUM Zambia works to improve the livelihoods of small-scale farmers by fostering ecological land use management.

MISSION

PELUM seeks to improve the living standards of vulnerable rural and peri-urban communities through capacity building, sustainable management and utilization of natural resources, networking, research and evidence-based campaign advocacy and lobbying.

VISION

PELUM Zambia envisions empowered and self-organised communities managing and utilizing their natural resources sustainably for improved quality of life.

OUR VALUES

- Participatory
- Gender Equity
- Professionalism & Teamwork
- Transparency & Accountability
- Respect for Indigenous Knowledge
- Sustainable Use of Natural Resources

STRATEGIES

- Campaign, advocacy and lobbying (CAL)
- Research, information sharing and networking
- Policy analysis related to agriculture and natural resource management

FOCUS AND NICHE OF PELUM ZAMBIA

- Ecological Land Use Management (ELUM)

MEMBERSHIP

PELUM has a membership of 60 organisations spread across the country. Its membership is in four categories.

1. **FULL MEMBERSHIP**

   This is open to like-minded organisations i.e. that share the vision, values and principles of ecological land use management. They have full voting powers in the Triennial General Meeting and or the Special General Meeting.

2. **ASSOCIATION MEMBERSHIP**

   This is open to International NGOs, networks, Government departments and newly established NGOs. These have no voting rights in the Triennial and Special General Meetings.

3. **INDIVIDUAL MEMBERSHIP**

   This is open to individuals who agree with the Association's Mission and Vision.

4. **INDIVIDUAL MEMBERS IN GOOD STANDING**

   These are paid up members and have the voting rights in the Triennial and the Special General Meetings.

CURRENT PROGRAMMES

1. **Farmer-led seed systems policy perspectives in Zambia and the region**. The project aims to promote debate and dialogue around seed policy in Zambia and the region with a major focus on democratic socialism farmer's rights, food and seed sovereignty

2. **Upscaling of innovative agroecological practices in the rural farming communities of Zambia for improved agriculture performance for the present and future**.
The project is being implemented in rural parts of Chinsali, Luwingu, Chipata, Kalomo, Sinazongwe and Chibombo districts. Farmers are provided with skills and knowledge in agroecology farming techniques for adoption in their communities.

3. **Knowledge Hub for Organic Agriculture in Southern Africa (KH SA) Project.**
The KHSA Project is part of the Knowledge Centre for Organic Agriculture in Africa (KCOA)project. The KCOA project is a collaborative country-led partnership funded by the German Federal Ministry of Economic Cooperation and Development (BMZ) and implemented by the Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) and non-governmental organisations. The project aims to scale up the adoption of organic farming practices in the Southern African region over four years.

It focuses project activities in Zambia, led by Participatory Ecological Land Use Management (PELUM) Zambia; in Namibia led by the Namibia Nature Foundation (NNF) in collaboration with the Namibian Organic Association (NOA); and in South Africa led by the South African Organic Sector Organisation (SAOSO). The South African-based Sustainability Institute provides support for project implementation. The project will extend to Malawi in 2021/22. GIZ is also implementing this project in north, east, west and central Africa.

OTHER ACTIVITIES

- Policy Analysis
- Stakeholder Engagement
- Networking

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EDITORIAL

Agroecology/Organic Agriculture Lead Farmers: The Agents of the Needed Change

An interaction with lead farmers championing the agroecology and organic agriculture agenda leaves you with complete amazement at the level of passion, belief, and commitment to their work.

In a world where industrial agriculture is the form of agriculture widely promoted and heavily funded by multinational companies that have captured and are controlling the food systems through the corporate capture of both seed and the system of agriculture, the existence of such a cohort of visionary farmers is simply heart-warming.

Introduced in the 1970s in Zambia, industrial agriculture has seen the emergence and adoption of programs such as the Farmer Input Support Programme (FISP) which is a program that distributes subsidised farming inputs in form of chemical fertilizers and hybrid maize and a few legumes to increase profits through increased production.

Such support to the farmers in the country has witnessed an upscaling in the utilization of pollution-causing chemical inputs in the form of pesticides and disease control systems.

When broken down by microbes in the soil, pesticides and chemical fertilizers release potent greenhouse gas nitrous oxide into the atmosphere increasing the Green House Gases in the atmosphere and eventually contributing to climate change.

It is a known fact that Industrial agriculture promotes monocropping and has seen farmers clearing huge amounts of forests, releasing carbon into the atmosphere and reducing carbon sinks.

With the prevailing agriculture environment, the training of the 25 lead farmers drawn from Northern, Muchinga, Southern and Eastern provinces in agroecology and organic agriculture by PELUM was indeed an awakening needed by all well-meaning people centred on the development trajectory of mother Zambia.

With the climate change reality at hand, the agroecology and organic agriculture discourse can no longer be ignored.

The lead farmers were capacitated with skills in organic soil management which highlighted the various aspects of organic soil fertility management practices including soil texture determination, soil profiling, best tillage practices, soil pH regulation techniques, types of cover crops, and crop rotation and its benefits in soil management including practical aspects of compost making, bokashi compost making, and manure tea making.

The expectation is that once such practices are implemented, the cost of production incurred by the farmers will undoubtedly reduce as they will not need to purchase expensive chemical inputs.

It was a relief to witness the lead farmers learning how they could manage pest and crop diseases organically. A detailed overview of ecological pest management and organic disease control methods was shared coupled with practical sessions highlighting the making of selected botanic pesticides.

With the skills acquired, our environment is headed for recovery as a farming system in tandem with nature is soon to be incorporated.

While it is gratifying that this carder of motivated lead farmers was capacitated with these skills, their task to train their follower farmers is an enormous one that needs the support of the government, community members, private sector players, and other stakeholders.

Indeed, we look forward to a farmer support program that will promote sustainable farming systems for the betterment of the livelihoods of communities by contributing to mitigation and adaptation to climate change and its effects.

It is no wonder that this group of focused and patriotic lead farmers is an agent of much-needed change in the global, continental, and national agriculture sectors.

Lead farmers following deliberations at the training

Save Our Environment - Farmers Urged

The government has challenged farmers to ensure environmental sustainability by adopting sustainable farming practices.

In a speech read on his behalf by the Director in the Department of Agriculture at the Ministry of Agriculture, Dr Chizumba Shapande during the 5th Zambian Traditional Seed and Food Festival held at Chilanga's Mundawanga Botanical gardens under the theme "**Food Sovereignty Through Indigenous Seeds and Food**", Minister of Agriculture Reuben Mutolo Phiri said issues of environmental sustainability were important for the soil, plant, animal and human health.

He added that Zambia had a diverse and rich heritage in seeds and foods which managed to sustain the population for decades hence the need to preserve it.

"The bulk of food consumed in Zambia is produced by small-scale farmers, therefore the resilience and survival of indigenous foods and seeds in the custody of our small-scale farmers should be encouraged so that we can continue to have healthy foods in the country", he said.

He noted that food and nutrition played a critical role in human development as well as in environmental sustainability.

"Food is central to human health and national development, and Zambia is a country endowed with seventy-two (72) different tribes. Each tribe has particular food types and different consumption systems which make our culture very rich," he said.

He thanked PELUM and its partner organisations for organizing the seed and food festival as it allowed stakeholders to recognise the fact that the environment needed protection through methods of food production that were utilised.

And speaking earlier on behalf of the 13-member consortium of civil society organisations that organised the festival, PELUM country coordinator Muketoi Wamunyima said the event started 5 years ago as an initiative of a group of civil society organisations and aimed at promoting indigenous seed and food as well as celebrating smallholder farmers and their contribution to food and nutrition security of the country.

"We know that our agriculture system is based on having enough quality seed so we can continue to produce food. So, we thought that farmers being the best people who have kept our seed for generations should be part of this big initiative so that they can continue preserving our seed and promote economic development through the production of food," he said.

He noted that the festival was a platform for farmers drawn from the 10 provinces of Zambia to share and exchange seeds as well as knowledge.

"The festival provides an opportunity for farmers to dialogue, talk amongst themselves and share ideas as to how best they can do their agriculture practices to enhance economic development," he said.

Mr Wamunyima however noted that the country's agriculture was at a crossroads due to climate change which had negatively affected productivity hence the need for traditional seed as it has the capacity to withstand the climate change effects due to its resilience to diseases and extreme climatic conditions.

Meanwhile, small-scale organic farmers have appealed to the government to recognize indigenous seeds and their potential contribution to food production in the country.

Speaking on behalf of the farmers at the same function, Lucy Musonda, an organic farmer from Rural Women's Assembly said the Government needed to enact inclusive legislation that recognized and supported the certification of farmer varieties.

The Guest of Honour Dr Shapande and his team following deliberations at the festival

She noted that institutions such as the Zambia Agriculture Research Institute needed to be strengthened by the government to enhance research on farmer's seed varieties. She bemoaned the lack of respect for farmers' rights to grow, share and sell seeds.

"There is a need for inclusive legislation that recognizes and supports the certification of farmer varieties as well as the recognition of agroecology in agriculture policy and the benefits that it brings to the agriculture sector, " she said.

A variety of local seeds displayed at the festival

A variety of local seeds displayed at the festival

She added that domestication and implementation of the international Treaty on Plant Genetic Resources for Food and Agriculture was important as it will enforce farmers' rights.

The Zambian Traditional Seed and Food Festival is an annual event organized by a consortium of Civil Society Organisation Championing Agroecology, Climate Change, Farmer rights, and social accountability. It celebrates local seeds and foods and appreciates farmers for contributing to the country's food and nutrition security. The festival also is a platform for farmer dialogue and knowledge sharing.

Women Organic Farmers Need Empowerment - Mushauko

"Women organic farmers should be empowered with livestock to support their organic farming activities," Regina Mushauko an organic farmer from chief Nzamane's village in Petauke District said during the four-day organic agriculture lead farmer training organized by PELUM Zambia in collaboration with the Knowledge Hub for Organic Agriculture in Southern Africa project.

Ms Mushauko said nature-based inputs such as manure were cheaper and healthier for humans and the environment and needed to be available to farmers, especially women who were custodians of families.

"Chemical fertilizers are now very expensive and most of us cannot afford them. They are also harmful to the soil and the environment," she said.

She added that the training which incorporated, soil and organic pest management, integrated farming, and facilitation skills was timely and important as most smallholder farmers are trying to transition from conventional farming to agroecology and organic farming.

And speaking when he officially opened the training session of the 25 lead farmers drawn from all the provinces of Zambia, PELUM Zambia country coordinator and KHSA Zambia project manager Muketoi Wamunyima said lead farmers were pioneers of organic agriculture and agroecology and had the responsibility of sharing the knowledge acquired with their follower farmers.

He added that his organization through the KHSA project was keen to share knowledge in sustainable agriculture practices such as organic agriculture and agroecology as they were friendly to humans, animals, and the environment.

The KHSA is part of the Knowledge Centre for Organic Agriculture in Africa (KCOA), a collaborative country-led partnership funded by the German Federal Ministry of Economic Cooperation and Development (BMZ) and implemented by the Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH and non-governmental organisations across Africa.

The KCOA aims to scale up the adoption of organic farming practices through five knowledge hubs in Africa. The other hubs are in North, East, West and Central Africa.

The South African-based Sustainability Institute supports project implementation in southern Africa. Activities are focused in Zambia, led by Participatory Ecological Land Use Management (PELUM) Zambia and Kasisi Agriculture Training Centre (KATC); in Namibia, led by the Namibia Nature Foundation (NNF) in collaboration with the Namibian Organic Association (NOA); and in South Africa led by the South African Organic Sector Organisation (SAOSO) in partnership with Participatory Guarantee System South Africa (PGS SA). The project extended to Malawi in 2022. Project activities in Malawi are led by the Kusamala Institute of Agriculture and Ecology and Soils, Food and Healthy Communities (SFHC).

Mr Wamunyima added that the training followed a needs assessment conducted which targeted lead farmers in Eastern, Northern, Muchinga and Southern provinces meant to assess the knowledge, attitudes and practices of lead farmers towards organic agriculture and agroecology.

"The assessment was to inform the development or collection of knowledge products that will be shared with lead farmers (individual multipliers) and their member organizations (institutional multipliers) for them to be using when training and supporting other farmers in organic agriculture and agroecology agricultural methods", he said.

Lead farmers during a practical lesson on organic farm plot establishment

He revealed that the assessment indicated that most lead farmers lacked knowledge of the full benefits of organic agriculture and agroecology as well as its benefits to the environment and the entire ecosystem.

And delivering training in soil management, Aaron Siyunda, a lecturer of Agroecology at the Natural Resources Development College (NRDC), highlighted the various aspects of organic soil fertility management practices including soil texture determination, soil profiling, best tillage practices, soil pH regulation techniques, types of cover crops, and crop rotation and its benefits in soil management including practical aspects of compost making, bokashi compost making, and manure tea making.

Lead farmers conducting a practical on soil profiling

Lead farmers mapping the foods they grow in their areas during the training

In organic pest management, Vincent Mofya, an Agriculturalist gave an overview of ecological pest management and organic disease control. Practical sessions were conducted on the making of selected botanic pesticides and designing an ecological pest management plot.

Dr Oswiin Chibinga, a lecturer from the University of Zambia, facilitated the integrated farming training highlighting the advantages and challenges.

And speaking on behalf of the trained farmers, Oasis director Jenipher Handondo thanked PELUM and the KHSA project for providing the training. She urged other farmers to go back home and implement the lessons learnt as well as train their follower farmers.

Climate Change, A Reality For Mother Earth

Deforestation of forest land. Photo: Unknown source

In recent years, climate change has been widely recognized as one of humankind's major challenges as highlighted in the Fourth Assessment Report of the Intergovernmental Panel on Climate Change (IPCC, 2007). According to the University of London (2015), the term 'climate change refers to change in the longer-term pattern of behaviour of the atmosphere over millennia as a result of natural processes or human activity. Climate change has mainly been triggered by carbon dioxide; the heat-trapping greenhouse gas that has driven recent global warming figures.

Anthropogenic (Human) activities around the world such as burning fossil fuels, especially in developed countries, clearing forests, unsustainable agriculture practices, and land use change have increased greenhouse gas emissions leading to global warming and climate change.

Africa and the entire globe suffer climate change impacts including intense drought, water scarcity, severe bush-fire rising sea levels resulting in flooding declining biodiversity, extreme heat affecting water resources, and low crop yields, (Aditisunevon 2020).

Various sectors in the economy contribute to the increased Green House Gas Emissions (GHG) including Agriculture, Transport, Forest, and mining sectors.

Agriculture is important for food security because it produces food for people and provides the main livelihood source for 36 per cent of the world's workforce (Istudor et al., 2014; FAO, 2008, p.9). Through agriculture, farmers can grow their food and sell some of it for income generation. A lot of farmers have taken farming as a business and provided a livelihood for them.

However, agriculture has recorded several negative effects on the environment such as soil chemical pollution, soil erosion, and greenhouse gas emissions (Ion, 2017).

Some studies (FAO, 2016, p.4) report that agriculture produces 21 per cent of greenhouse gas emissions. Other studies (IPCC, 2007a) show that agriculture

contributed 13.5 per cent and forestry 17.4 per cent to greenhouse gas emissions that cause climate change in 2004. The major contribution comes from enteric fermentation in ruminants, 40 per cent, burning crop residues, 16 per cent, chemical fertilizers, 12 per cent, and rice cultivation, 10 per cent (FAO, 2016, p.38).

In Zambia, the livestock sector comprises around 2.8 million cattle, 1m goats, 80,000 sheep and 480,000 pigs, with the largest population found in the traditional sector (83% cattle, 97% goats, 64% sheep, and 90% pigs). Livestock distribution in the country indicates that Southern, Eastern, Western and Central Provinces account for 89% of the total cattle population with the remaining 11% found in Northern, North-western, Lusaka, and Luapula Provinces. (Sinyangwe and Clinch 2000). With all the livestock which are mostly indigenous breeds, there have not been any deliberate actions to monitor and secure the manure produced. In most areas, it is just left along the pathways where the animals trail in search of pasture, leaving the methane released into the atmosphere.

In addition, according to the Intergovernmental Panel on Climate Change (IPCC), the increase in radiative forcing since the start of the industrial revolution in 1750 up to 2011, is associated with human activities which show the high contribution of gases such as carbon dioxide.

For Zambia, industrial agriculture was rolled out in the 1970s and has seen the introduction and adoption of programmes such as the Farmer Input Support Programme (FISP) which is a program that distributes subsided farming inputs in form of chemical fertilizers and hybrid maize and a few legumes as a way of increasing production as well as profits.

With chemical inputs come chemical pest and disease control systems which get broken down by microbes in the soil, releasing the potent greenhouse gas nitrous oxide into the atmosphere increasing the GHG in the atmosphere and eventually contributing to climate change.

Industrial agriculture promotes monocropping and has seen farmers clearing huge amounts of forests thereby releasing carbon into the atmosphere, and reducing carbon sinks. Farmers also burn crop residues and organic matter, releasing GHG into the atmosphere.

Livestock dying due to extreme climate conditions. Photo: Unknown source

Mechanization of the agriculture sector contributes to the increased emissions into the atmosphere. The use of tractors, which entails maximum tillage releases into the atmosphere, the carbon stored in the soil increasing the risk of climate change.

With the climate change reality upon the earth, there is a need for mitigation strategies against climate change.

Five strategies can be implored including enhancement of soil carbon sequestration, improving nitrogen-use efficiency, increasing ruminant digestion efficiency, capturing GHG emissions from manure and other wastes; and reduction fuel consumption (Greenhouse Gas Working Group, 2010).

For soil enhancement, nature-based agriculture practices such as agroecology and organic farming increase soil carbon sequestration by maintaining plant residues on the soil surface, minimizing soil disturbance and erosion.

In terms of improvement management programmes available to improve nitrogen-use efficiency, including promotion of the use of legumes, cover crops, filter strips, and nitrification inhibitors should be adopted by farmers.

In the case of ruminants, increased digestion efficiency through diet quality and managed feed intake should be encouraged. As opposed to open grazing, feeding options such as hydroponics should be supported as a source of fodder for the animals as well in agroforestry which can be both a mitigation through carbon sequestration and as an adaptation as a source of fodder for the animals.

In addition, capturing biogas from manure through anaerobic digestion increases production efficiencies by utilizing methane as a fuel for generating on-site electricity and heat energy hence the need to explore the initiative.

In terms of pest and disease control, there is a need to capitalize on indigenous knowledge of pest and disease control which can be explored and improved as it is friendly to the environment and lessens emissions.

It is therefore incumbent upon all inhabitants of planet earth to guard against environmental destruction of the planet through various avenues including agriculture by adopting sustainable farming systems that will ensure the needs of the present and future generations are met.

Landslides caused by climate change.
Photo: Unknown source

Kachere Development Programme keen to Support Farmers - Tembo

At least 167 farmers in the project area for Kachere Development Programme (KDP) in Eastern Province have recorded an increase in household income realized from gardening activities.

In an interview recently, KDP Executive Director Martin Tembo said an additional 172 farmers were food secure due to the interventions by his organization under Sustainable Natural Resource Management and Agriculture Practices.

He said KDP, a member of PELUM, had in the last year distributed 5,021 vegetable seed packs to 1,673 farmers while 3,110 agroforestry and fruit trees were distributed to farmers and identified schools in chief Nzamane, Maguya and Sairi chiefdoms.

He added that 2,604 bundles of Cassava cuttings were also distributed to 372 farmers in Nzamane and Mafuta Chiefdoms.

"Our aim is to boost household income and food security among smallholder farmers through increased production and productivity," he said.

He added that in the wake of climate change, his organization has prioritized the building of resilience among smallholder farmers through crop diversification as well as integrated farming systems.

"We identified and selected 200 farmers to take part in organic farming training which has been a valuable addition to the production they do and also supported them

with 25 treadle pumps," he said.

He noted that during the 43 field visits his organization conducted to monitor the trained farmers, 46 had established demonstration plots for agroforestry trees and organic farming. He said his organization was keen to support communities to adapt to climate change through sustainable farming systems such as agroecology and organic farming which are friendly to the environment.

Mr Tembo thanked KDP funding partners, collaborating partners as well as farmers for the support rendered and hoped 2023 would spur more partnerships for the benefit of communities.

Meanwhile, Regina Shako, one of the beneficiary lead farmers said since her adoption of organic agriculture, her crop production and yield had improved due to the improved soil fertility in her farmland.

"Before adopting Organic farming, I had limited access to information, and no skills in organic farming and value addition. I did not know how to invest my earnings which made me very unstable financially," she said

She thanked KDP for the knowledge and skills in organic farming and sustainable farming methods it had imparted to her adding that she would use it to improve her livelihood and also share with other farmers.

Mr Lukhelo - Organic Lead Farmer

Seed Diversity for Life

By Wilfred Miga

Small-scale farmers (SSF), family farmers and other indigenous farming communities world over play an important role in the production of food and maintenance of crop diversity. They produce more than 80% of the required food and they contribute significantly to the well-being of the people in most developing countries and the third world. At the same time, they have to face the harsh conditions brought about by climate change, unpredictable droughts and pest infestation. All this underlines the importance of small-scale farmers to have adequate capacities to withstand and adapt their farming and seed systems, to strengthen their livelihoods and food security. The dynamics of how the farmers respond to the change in climate and other harsh conditions have a great impact on how they shape their future.

Therefore, their understanding of the agroecology systems, seed systems and their resilience to the changing weather is critical in building local responses. This calls for innovative ways but also resilient farming systems that are sustainable and productive.

Seed plays an important role as the initiator of life. To a farmer, the seed is a source and the beginning of life, food, and a connection to one's cultural heritage. In our African communities seed has always been a shared heritage that was not ascribed to an individual clan or community but was owed communally. With the coming in of the seed breeders, it became necessary that some value be attached to the seed.

As they began to introduce foreign seeds such as Zea Maize and began to domesticate our own seeds through breeding they began to attach a commercial value to the seed. This led to the introduction of some form of ownership to the seed which was once a communal good and now changed to be a commercial product. The developers of the new seed sought to protect what they termed their own seed hence the introduction of seed laws and regulations. These were meant to protect the people who introduced their own seeds through the manipulation of our own traditional

seeds. The laws and regulations that were introduced did not in any way consider the farmer's rights but concentrated much on the breeder's rights.

Some of the current seed laws, policies and regulations that farmers should be made aware of and understand as they strive to create an enabling policy environment for increased production, participation and improved livelihoods are discussed below.

Food and Agriculture Treaty on Plant Genetic Resources for Food and Agriculture(ITPGRFA)

This is the treaty that protects the farmers' rights to save, reuse, exchange and sell farm-saved/propagating materials to maintain and create agrobiodiversity and manage plant genetic resources for food and agriculture.

It does strengthen farmers' rights as they are the ones who have over centuries used and preserved the traditional seed hence their rights to save and share which is central to their livelihoods.

The treaty also includes the rights of farmers to participate in decision-making, and equal participation in the fair and equitable sharing of the benefits arising from the use of plant genetic resources for food and agriculture, as fundamental to the realization of farmers' rights.

The International Union for the Protection of New Varieties of Plants (UPOV)

Intellectual property rights give a person exclusive rights over the use of his/ her creation for a certain period. The World Trade Organisation Agreement on trade-related aspects of intellectual property rights (TRIPs) requires member countries to" provide for the protection of plant varieties either by patents or by an effective sui generis system or a combination thereof". At least developed countries have until 2021 to comply with the TRIPs agreement.

UPOV aims to provide and promote an effective system of plant variety protection through which breeders of new plant varieties can be granted a plant breeders' right (PBR). The rationale is that since plant breeding is a long and expensive process, while plant varieties can be easily and quickly reproduced, breeders need protection to recover their investments and encourage further breeding.

UPOV does not fully recognize farmers' rights as enshrined in the FAO treaty. Article 14 of the UPOV nullifies the rights of farmers to save, use, exchange, and sell farm-saved seed where protected varieties. The UPOV 1991 convention contains breeders' exemption which allows protected varieties to be freely used to breed new varieties thereby allowing any breeder to have access to the latest improvements and variations.

National Seed Laws and Regulations

Zambia has several legislations on the seed. These seed laws and regulations should act as instruments used to harmonise and regulate actors and operations within the sector to maintain standards.

At the national level, farmers should also understand the following policies and regulations.

The Draft National Seed Policy OF 1999

A national seed policy was developed in 1999, which is still in draft form. Seed issues are also embedded in the second National Agricultural Policy 2016. The draft seed policy and seed act provide a basis to regulate the seed sector through seed testing; seed crop inspection; variety registration; variety protection and enforcement of seed quality standards to facilitate seed trade; quarantine and other seed-related issues; multiplication, and the protection of plant breeders', farmers' and community rights (ISSD Africa, 2012).

The seed industry is regulated by various Acts. The Plant Variety and Seeds Act, which was enacted in 1967, initially only allowed for the participation of public entities in the seed sector. This was amended in 1994 and 1995 to provide for private-sector participation. The Act regulates the control of the production, sale, and import of seed. In addition, it regulates and controls the export of seed, and seed testing, setting the minimum standards of germination and purity; providing for the certification of seed, and other incidental or related matters (ISSD Africa, 2012).

What that means is that the Plant Breeders' Rights Act provides for the protection of plant breeders' rights; the registration of plant varieties; and for other matters, connected or incidental. Further, while Zambia has enacted this Plant Breeders' Rights Act, it has not yet addressed farmers' rights and community rights individually, although there is partial mention of farmers in some sections of the Plant Breeders' Rights Act, the Act is not explicit on the preservation of farmers' rights.

Further, Zambia has aligned its national seed laws to the Common Market for Eastern and Southern Africa (COMESA) and Southern African Development Community (SADC) seed laws. According to the COMESA 2014-2020 Strategy, the harmonisation is meant to increase seed production, reliability, trade and competitiveness of the seed industry in the region.

According to (Mulenga, 2017), agriculture contributes about 30% of COMESA's GDP which stands at US$550 million. However, about 120 million of the 510 million people living in the region suffer from food insecurity. Compounding this is the fact that only one in every four smallholder

farmers has access to quality or improved seed. This affects the productivity of smallholder farmers. Historically, the regulatory environment surrounding seed production and certification has made it costly to do business in the agriculture sector.

Despite the positive policy environment and growth for the sector, fewer than 40 per cent of small to medium-scale maize farmers use hybrid seeds (World Bank, 2012). Nationally, the proportion has increased.

However, due to the continued expansion of the Farmer Input Support Program (FISP), the share of small and medium farmers using hybrid seed has likely increased more recently, but it is still clear that many households do not have access to this input. Recycling of seed is a common practice among smallholder farmers, but recycling hybrid seed leads to dramatic declines in yield in the subsequent years of use. Socially, these seed laws and regulations remove ownership and participation of the small-scale farmers as it restricts their full participation by bringing out stringent conditions and obligations which small-scale farmers are unable to meet.

Implications of these laws on small-scale farmers and family farming communities.

- By determining who can produce and sell seeds under which conditions, seed laws negatively impact the functioning of farmers' seed systems and hence the implementation of farmers' rights.
- The pieces of legislation available have exclusively focused on the production and trade of seed for commercial markets, without recognition of the strengths and needs of the farmer seed systems.
- The current policy environment on seed focuses on the formal seed sector which is skewed towards the promotion of relatively few crops and directs activities towards favoured, high-potential areas, with little, if any, work on diverse demand in more marginal areas where most of the family farms are located.
- Varieties that may perform well at research stations ('on-station), under ideal conditions, with fertilizers, irrigation and so on, are not necessarily good in relation to specific and unique socio-ecological contexts, especially marginal areas.
- The current seed laws and regulations remove the roles of women who culturally and historically have been the custodians of seed, food security and growers.
- Farmers' rights are infringed upon by the current policy dispensation especially the PBR, UPOV and the proposed COMESA harmonised seed laws.

- The implementation of intellectual property rights weakens the role of the farmers in their management of plant genetic resources for food and agriculture.

The Challenge for policymakers now is to create policies and laws that support not only the formal seed system but also the farmer seed system.

This means not only attempting to avoid unintended impacts of seed laws on farmers' rights but using seed laws to create conditions that are supportive of the important role farmers' seed systems play in food and nutrition security as well as social cohesion. Women's central role in the seed sector should be upheld by giving them opportunities to participate in decision-making processes at local, national and global levels.

A display of a variety of seeds

Bringing Safe, Clean, Innovative and Sustainable Sanitation to Mwanza Chiefdom

The effects of poor sanitation can have far-reaching and ill-fated effects on people who use unsanitary toilet facilities such as pit latrines, practice open defecation, and drink contaminated water. A common case is Mwanza Chiefdom. The chiefdom is situated approximately thirty-three kilometres west of Monze district, in the Southern province of Zambia.

Like many other rural parts of Zambia, communities of Mwanza chiefdom do not have adequate sanitation services. More than half the population in the chiefdom use shallow pit latrines and practice open defecation. This has been a result of inadequate financial resources, insufficient water and difficult soil conditions due to land degradation and other exploitative anthropogenic practices in the area. The impacts have adversely affected not only the health but social and economic development of the communities.

To assist in improving the sanitation conditions and boost the livelihoods of Mwanza communities, Green Living Movement (GLM), a member of PELUM Zambia, in partnership with Monze district local government authority and the communities of Mwanza embarked on the Zambia Dry Sanitation Country Program (ZDSCP) project. The four-year project (2021-2024) is aimed at improving sanitation and hygiene conditions in Zambia through the introduction of inclusive and sustainable sanitation in the targeted communities. It also contributes to achieving access to adequate and equitable sanitation and hygiene for all as well as ending open defecation by 2030 as stipulated by SDG 6.

In an interview recently, GLM Programmes Manager Clive Chibule revealed that **"The sanitation in Mwanza chiefdom has so far greatly improved since the inception of the project in 2021. This has been through**

GLM undertaking several activities such as; sanitation health education and awareness programs reaching out to over 50,000 people through production of information materials, meetings, radio programs and awareness events,".

He added that his organization under the School Menstrual Health and Hygiene (MHH had more than 100 girl pupils at Kasaka school, teachers and female parents around the school sensitised on proper management of menstrual cycles as well as being trained in the production of reusable sanitary towels using local materials.

"GLM has also conducted training in dry toilet construction to community groups and constructed a total of 35 Urine Diversion Dry Toilets (UDDT) and distributed 35 handwashing devices (Sato taps)," he said.

Mr Chibule noted that the devastating impact of climate change proved challenging to most sanitation systems in the world adding that the Urine Diversion Dry Toilet (UDDT) was designed not only for hygiene and to avoid underground water contamination but also to withstand extreme weather conditions and help to adapt to the impact of climate change.

He further said the dry toilet was a permanent, well-established technology in which the toilet interface had separate holes for urine and faeces and whose end products (urine and faecal matter) were used as soil conditioners in agriculture.

He highlighted that community participation and capacity building had been key factors in the project design and implementation to ensure ownership and sustainability.

The ZDSCP is a four-year project supported by the Global Dry Toilet Association of Finland. It is expected that by 2024, the project would yield increased provision of dry toilets and handwashing facilities for targeted Mwanza communities which would help increase the chances of achieving Open Defaecation Free (ODF) status and reduced incidences of water bone diseases. It is also expected that increased awareness of improved practices and attitudes towards Water, Sanitation and Hygiene (WASH) and Menstrual Health and Hygiene Management (MHM) coupled with improved participation of vulnerable groups such as girls, women and the physically challenged in WASH issues, thus improving their knowledge and gain sanitation facilities meeting their special needs would be achieved. The creation of new jobs and means of livelihood through the sanitation value chain would be attained.

Interact Often With The Media - PELUM Urged

Radio Phoniex news editor Patricia Mbewe has appealed to PELUM in collaboration with the Knowledge Hub for Organic Agriculture in Southern Africa (KHSA) project to interact more with the media to share organic agriculture and agroecology knowledge and information.

Speaking during a breakfast meeting for news editors from selected media houses across the country recently organised by PELUM under the KHSA project held in Lusaka, and meant to share organic agriculture knowledge and build stronger relations, Ms Mbewe said organic agriculture and agroecology are rare topics discussed hence do not make the newsroom diary.

She added that the lack of adequate knowledge of organic agriculture and agroecology among journalists made it unlikely for them to pursue stories related to the subject matter depriving the general public of the knowledge and information.

"I must confess that I am one of the editors that has been spiking stories related to organic agriculture and agroecology because they seem not to be worth publishing due to my limited understanding of the subject," she said.

She added that it was important that PELUM and other organizations promoting sustainable farming systems enhance their interactions with journalists through various deliberate fora and share knowledge and success stories in organic agriculture and agroecology.

"The media is a vital platform for information dissemination and is useful even for sharing knowledge on organic agriculture and agroecology," she said.

And speaking during the event, PELUM programs officer Wilfred Miga said the green revolution which saw the introduction of industrial agriculture as a means to increase production and profit initiated the use of chemical fertilizers, synthetic herbicides and pesticides, and high-yield crops such as wheat, maize and rice.

He said practices such as intensive tillage, monoculture, application of inorganic fertilizer as well as genetic manipulation of domesticated plants and animals (GMOs) were introduced and accepted by governments and farmers.

He bemoaned that though no direct evidence can link the increased usage of chemicals in food production to the increase in diseases such as cancers, skin conditions, obesity, and diabetes, one would not doubt it is one of the major contributing factors.

"It is now known that the chemicals commonly used in industrial agriculture (pesticides, insecticides, herbicides, fungicides and antimicrobials) cause endocrine disruptions and cancer in humans. Diabetes and obesity now affect over 400 million people worldwide and heart diseases and strokes are on the rise," he said.

He added that it was important for the government and other stakeholders to invest in research and development of sustainable agriculture systems such as agroecology.

He noted that agroecology and organic agriculture were premised on the principles of Health, Care, Ecology and Fairness to all.

Mr Miga narrated that the principle of health promotes the maintaining and building of the health of the soil, plants, humans, and animals as the health of these elements were interconnected while the principle of care highlights organic agriculture supported by the precautionary principle in all its management decisions to protect the environment and the health of people today and in the future.

He highlighted that organic agriculture worked with and mimics living ecosystems and natural cycles to help support their continuing functioning through the principle of ecology while the principle of fairness emphasized and ensured fairness, justice, and respect in relationships between farmers, processors, distributors, traders, and consumers, and between these groups and the earth.

He appealed to the editors to ensure organic agriculture was part of their agendas in the various media institutions as that will result in the sharing the organic agriculture knowledge to the general public.

Editors following deliberations at the engagement

Ecological Pest and Disease Management

By Vincent Mofya

Crop losses due to pests and diseases are a major threat to the incomes of most smallholder farmers and food security globally. Crop losses instigated by pests and diseases perpetuate a reduction in crop yield, significantly obligating the quantity and quality of produce. Economic damage occurs in the field (pre-harvest losses) or the storage (post-harvest losses) due to biotic or abiotic factors. Crop loss conduits a decrease in the farmers' value and financial returns of their crops.

In our Ecological based pest and disease management, the focus lies on two important branches of Ecology:

Community Ecology

Different populations that live in the same environment create communities of organisms. These communities create niches, or various spaces, for organisms to occupy. For instance, several niches can be found in a wheat field. Wheat exists on the sun's rays and the nutrients in the soil. Various insects live off of the nutrients collected by the wheat. Certain bacteria occupy a niche in the roots, where they convert nitrogen for the plant. Community ecologist study these complex interactions and the selective pressures they produce. Sometimes, organisms in communities will begin to experience coevolution where two or more species both evolve in response to each other. This can be seen in many species, from bees and the flowers they pollinate to predators and the prey they eat.

Ecosystem Ecology

The largest scale of organismal organization is the ecosystem. An ecosystem is a network of interconnected biological communities. The largest ecosystem, the biosphere, encompasses all ecosystems inside of it. Ecosystem ecologists study the complex patterns produced by interacting ecosystems and the abiotic factors of the environment. They may study water, nutrients, or another chemical that cycle through the ecosystem. Ecosystem ecology is a very complex and large-scale science that includes many disciplines.

Principles of insect pest and disease control

The underlying principle in the management of pests in sustainable organic agriculture (SOA) is that the protection of crops should be done in such a way that it does not interfere with the long-term sustainability of the production system; the health of the farmer and the wellbeing of the ecosystem as a whole. The cheapest and most reliable way to deal with pest problems is to anticipate and avoid them. The management of pests in SOA is achieved through the cumulative effect of many preventive practices. When preventive measures are not successful, botanical pesticides and microbial sprays are used. Botanical pesticides and microbial sprays have an advantage over synthetic ones because botanical pesticides break down easily and faster and as such have little or no residue effect to cause pollution. Secondly, there is little or no cost associated with the use of botanical pesticides.

Pests and Disease Management

Ecological Pest Management relies on preventive strategies rather than being responsive (Curative strategies). The cropping program should focus primarily on preventive practices above and below ground to build your farm's natural defenses.

Reactive/responsive strategies can only take a toll when the problems are not solved by the preventive or planned strategies.

Knowing the problem

Before taking action, it is very important to correctly identify the problem. There are many causes for an unhealthy crop. These could range from lack of nutrients, pest infestation, diseases, or other environmental factors. Proper identification should be the first step in controlling the problem and, more importantly, in preventing it from happening again.

Crops should be regularly scouted to see if the pests are building up to a level where economic damage will potentially occur. It is also important to know the beneficial predators of pests and whether these are sufficiently controlling the pests.

The management of pests in SOA includes two major categories of practices, namely preventive and curative measures.

Preventive measures of pest management

Most, if not all the preventive measures of ecological-based managing of pests hinge on cultural practices that can easily be integrated into the small-scale farming system. Cultural practices allow nature to control itself, maintain the ecological population, balance the ecosystem and are handy in helping the plant build genetic resistance to all pathogenic infections and attacks. Cultural practices build on

ecosystem services such as pest predation while protecting others, such as pollination. It also contributes to increased farm productivity and food availability by reducing pre and post-harvest crop losses (FAO 2022). The following are some of the cultural practices vital in the ecologically based management of pests and diseases in the field:

- **Holistic soil fertility management**

Plants which are fed well, just like people, will be much more resistant to pests. Soil fertility management using organic practices ensures that the plant gets more than the 3 or 4 nutrients that are routinely supplied under conventional systems. There is always a general assumption in the conventional systems that the crop will get the rest of the nutrients from the soil. As much as this might be the case for newly opened fields, with continuous farming, the other nutrients run out eventually, and since only a few are put back, the crop starts to suffer from nutrient deficiencies and become vulnerable to pests and diseases.

Additionally, the supply of large amounts of highly soluble nitrogen through chemical fertilizer tends to cause fast sappy growth which is very attractive to pests. It has been observed that pests lay double the number of eggs on a plant grown with chemical fertilisers compared to organically grown plants. The elaborate weed management system in agroecology further ensures that weed competition for plant nutrients with the crop is reduced.

- **Resistant varieties and genetic diversity**

Different varieties of a crop may have different abilities to resist pests and/or diseases. For instance, traditional crop varieties grown by farmers have undergone natural selection over many years to become more adapted to local conditions and resist pests and diseases better than exotic ones. Crops which have been bred by modern methods tend to be very similar to one another (uniform) and as such have similar susceptibility to particular pests and diseases. Growing different varieties of the same crop as well as diversifying the number of crops in the field is insurance against crop failure due to pest and disease attacks and in unusual weather such as drought or flood.

Additionally, growing different crops in the same field brings about diversity in the insect population as each crop attracts different types of insects. The diversity in the insect population is very important in ensuring that a balance between pests and predators is created.

- **Crop rotation**

Growing the same or similar crops in the same field year after year can encourage a build-up of pests and diseases. These will transfer from one crop to the next. Crops should be rotated each year, and only returned to the original site after one or more seasons of growing different crops. For instance, a 3 to 4 crop rotation cycle is usually recommended for vegetables as a minimum. Crop rotation also helps a variety of natural predators to survive on the farm. Below is an example of how crop rotation can be achieved over a period of six (6) years;

Crop Rotation over 6 Years

	Field 1	Field 2	Field 3	Field 4
Year 1	Velvet beans	Green gram	Maize	Pigeon peas
Year 2	maize	sunflower	Sunn hemp	Pigeon peas
Year 3	Groundnuts	Cotton	Sorghum	Pigeon peas
Year 4	sunflower	Sunn hemp	Cowpeas	Maize
Year 5	Maize	Maize	Sunflower	Cowpeas
Year 6	Groundnuts	Velvet beans	Maize	Sweet potatoes

FARMER TIPS

By Etinala Tembo

Tip 1: Biodiversity

Monoculture destroys biodiversity. Agriculture that concentrates on growing a single crop such as maize and using chemical fertilizers caused a loss of biodiversity. **Courtesy of AFSA**

Tip 2: Crop Rotation

Growing the same crop in the same site year after year reduces soil fertility and can encourage the build-up of pests, diseases, and weeds in the soil.

Tip 3: Cover Crops

Common cover crops that can be used by farmers include, Cowpea, Velvet bean, Sun hemp, Pigeon pea, Jack bean, Faidherbia albida (musangu tree), Moringa oleifera and Gliricidia sepium.

Tip 4: Mixed Cropping

Mixed cropping increases crop yield, minimizes pest infestation, reduces the risk of crop failure, ensures proper soil utilization, and allows more than one variety of crops to be harvested at the same time.

Tip 5: Record Keeping

A successful farm producer keeps well-maintained, accurate records and establishes a sound record-keeping system. Keeping accurate records helps farmers to plan and complete realistic forecasting for the next year.

Tip 4: Organic Agriculture

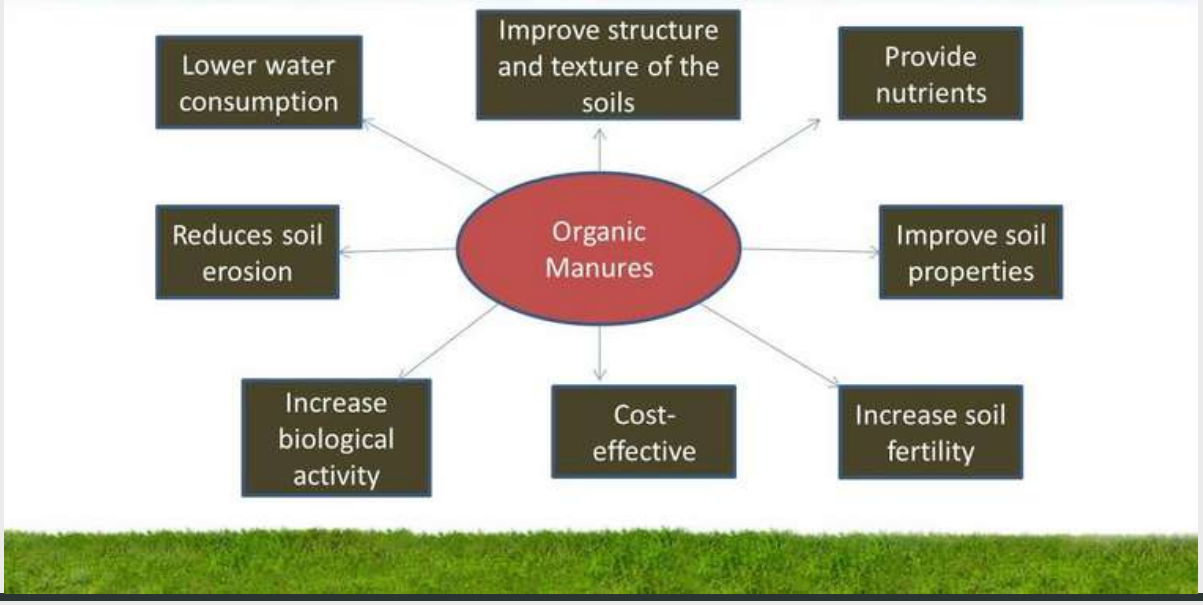
Organic agriculture is a way of farming that keeps soils, ecosystems and the life that inhabits them, including people, healthy. It uses natural processes and products to produce food in a way that does not harm the environment and that provides people with the nutrients they need for a healthy life.

ORGANIC MANURES

By Aaron Siyunda

Types of Organic Manures

Benefits of Organic Manure



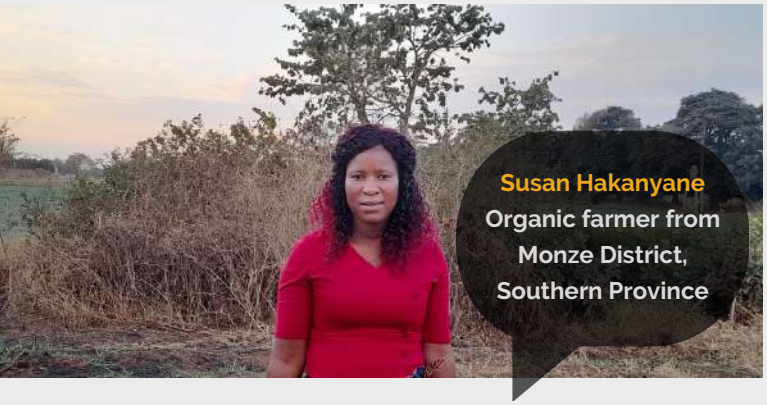
FARMER VOICES

My health and the health of my family are important. I grow food using the agroecology system of farming and it gives me poison-free food that I share with my family.

I inherited my land from my grandmother and I have produced enough to feed my family and also sell for business. The land is still fertile because I don't add any chemical fertilizers to it. Agroecology is the way to go!

I earn a living through growing and selling organically produced foods. Government should attach a premium price to organic foods to motivate more farmers to engage in organic farming.

Government should make deliberate policies that will allow women especially in rural areas to own land to allow them to conduct their farming activities freely.



Women organic farmers should be supported to own their livestock to be used in organic farming which provides nutrition for the family.

Government should consider including organic inputs in the Farmer Input Support Program pack to enable us to have a choice on the inputs we want.

Promote Sustainable Farming Methods - Traditional Leaders Urged

Civil Society organizations (CSOS) advocating for the adoption of sustainable farming systems have appealed to traditional leaders to exercise their powers to promote practices that safeguard the natural resources within the chiefdoms.

Speaking when he made a presentation to the house of chiefs on behalf of a 7-member consortium of CSOs, PELUM Zambia Programmes officer Wilfred Miga said as custodians of land, forests, and environment, traditional leaders had the duty of safeguarding the environment in their chiefdoms.

Mr. Miga said traditional leaders should guard against corporate influence on the agriculture sector, which promoted industrial agriculture, which is unsustainable as it promoted land clearing, monocropping, intensive tillage, and intensive usage of chemical fertilizers and pesticides.

"Your royal highnesses, we ask that you be advocates for agroecology and help influence the government to recognize its importance in improving the lives of community members because it is a system of agriculture that is in tandem with nature," he said.

He noted that agroecology led to the production of safe and healthy food, the reduction of rural poverty due to reduced cost of production as well as the respect for indigenous knowledge and farmers' rights.

"When you use agroecology, you reduce the cost of producing because you rely on farm resources which increases your income per unit area, with more families benefitting and more funds for the government to spend on other development agenda," he said

He said in the wake of climate change, agroecology ensured less soil degradation, mitigation of climate change, and no loss

of biodiversity as well as contamination of the ecosystem.

He added that traditional leaders were custodians of our traditional cultures and customs and therefore were best suited to the promotion and preservation of indigenous seeds and foods.

He noted that the inclusion of other small grains such as sorghum and millet and legumes in the Famer Input Support Programme (FISP) could promote food and nutrition security in the country.

"Currently, the FISP program largely promotes hybrid maize with a few legumes coupled with chemical fertilizers," he said.

And reacting to the presentation, Chief Mabumba of Mansa district in Luapula province said the agriculture system that promoted cutting down of trees destroyed the environment.

He said traditional agriculture that was practised in the olden days did not allow the uprooting of trees and hence never destroyed the environment.

"Chitemene system of farming was not harmful to the environment because trees were not uprooted," he said.

He appealed to PELUM and other CSOs to reach out to rural areas in their various chiefdoms and share knowledge and information on agroecology with their subjects.

The House of Chiefs is a meeting of traditional leaders which discusses issues affecting their chiefdoms and plays an advisory role to the government on matters of tradition and customs as well as raises proposals for policies to the government. The meeting convenes twice every year with representative chiefs from all the 10 provinces of Zambia.

ZAMBIA TRADITIONAL SEED AND FOOD FESTIVAL 2022

Farmers display a variety of local seeds during the festival

Farmers following deliberations during the farmer dialogue session at the festival

The Guest of Honour Dr Shapande visiting the stands of local seeds at the festival

Judge inspecting stands at the festival

PELUM team showing off their awards after scooping the best crop diversity and the best organic display awards at the festival

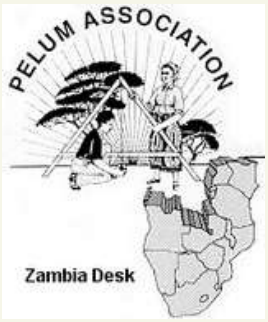
Variety of seeds displayed at the festival

Xplosion band entertaining festival patrons

Wild fruits displayed during the festival

Variety of local seeds displayed during the festival

The Guest of Honour Dr Shapande visiting the PELUM stand at the festival



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