TEKULIMA

NENTFUTHUKO

ISSUE 22

EVERY HOUSEHOLD CAN HAVE A VEGETABLE GARDEN – Says MEC HLOPHE

AFRICAN ARMYWORM OUTBREAK IN MPUMALANGA UNDER CONTROL

agriculture, rural development, land & environmental affairs
MPUMALANGA PROVINCE
REPUBLIC OF SOUTH AFRICA

30 YEARS OF FREEDOM

MPUMALANGA
THE PLACE OF THE RISING SUN

Table of Contents

CONTENT CONTRIBUTORS

EDITOR: Zanele Shabangu

COMMUNICATIONS TEAM: Bheki Nyathikazi, Celani Ndude, Xolile Nkabinde, Andile Shabangu Patrick Nyathi, Sthembile Mohlala, Gugu Nkosi, Portia Nkosi, Thembisile Masilela,
LAYOUT AND GRAPHIC DESIGN: Muzi Mnisi

EDITORS **NOTE**

Ms. Zanele Shabangu

Welcome to this Edition

As we continue to navigate the complexities of a rapidly changing world, the importance of sustainable agriculture and environment has never been more pressing. Our Department remains committed to supporting the farmers and agricultural communities at large who work tirelessly to feed the nation and steward our natural resources.

The Department has been actively responding to the recent outbreak of the African army worm, a devastating pest that poses a significant threat to livestock and crops. Workshops and outreach programmes were organised by the Department to educate farmers on the risks associated with the African army worm and the necessary control measures. Affected farmers were also provided with pesticides and other control measures to help manage the outbreak.

This newsletter highlights the latest initiatives, research, and success stories from our Department. From innovative approaches to crop and animal management and sustainable environment, to efforts to promote agricultural education and outreach, we are dedicated to advancing the well-being of our agricultural community and the environment.

I invite you to read on and learn more about the exciting work underway in our Department. Together, we can build a more resilient, productive, and sustainable agricultural system for the generations to come.

Feel free to pass this copy to another person to also benefit.

AFRICAN ARMYWORM OUTBREAK IN MPUMALANGA UNDER CONTROL

The Mpumalanga Department of Agriculture, Rural Development, Land and Environmental Affairs (DARDLEA) has called on both livestock and crop producers to be on high alert after a confirmed outbreak of the African armyworm (Spodoptera Exempta) in the Chief Albert Luthuli Local Municipality in Mpumalanga. This after the pest infestation was confirmed at the Manzana/ Carolina areas in the municipality, including several farms in Lydenburg, Emalahleni, Bronkhorstspruit in Gauteng, some areas in Limpopo and lately causing havoc in Zimbabwe.

The national Department of Agriculture, Land Reform and Rural Development (DALRRD), in collaboration with the DARDLEA promptly reacted to the confirmed outbreak on February 16th, and organised a workshop for local farmers who gathered at Elukwatini office on Friday, 21 February 2025. The gathering also saw the distribution of PPEs, chemicals and spraying pumps, including demonstrations and tips on the use of the chemicals and the pumps. The spreading of the worm has been under control since, although the Department is still on high alert, hence the continued workshops for farmers on the worm, including the distribution on chemicals and spray pumps.

The African armyworm feeds predominantly on pastures, but may also feed on grains such as maize and millet. Sporadic African armyworm outbreaks are very common and mostly occur in the grassland biome which

covers the Northwest, Gauteng, Mpumalanga, Free State, KwaZulu-Natal and Limpopo. All farmers are therefore advised to be on alert, and should African armyworms be identified; they must inform the Department. These armyworms are generally blackish in colour but can be brown to green. Unlike the Fall armyworm, the African armyworm is usually found in masses on grasses and do not hide in crops during daytime like the Fall armyworm.

EVERY HOUSEHOLD CAN HAVE A VEGETABLE GARDEN – says MEC HLOPHE

In an effort to inculcate the love for agriculture and subsistence farming, the MEC Nompumelelo Hlophe for Agriculture, Rural Development, Land and Environmental Affairs continued her drive to encourage food production at a household level, saying hunger can be avoided if people establish backyard gardens, and produce their own vegetables. MEC Hlophe made the comment during a visit to Imizamoyethu Primary School in Mkhondo on 30 January 2025, engaging learners on Phezukomkhono Mhlali programme, and established a new food garden. She was accompanied by the Mkhondo Local Municipailty, Department of Education and the School Governing Body.

“I encourage you to take pride in your school and keep your environment clean, a clean environment is essential for effective learning and teach. Let us work together to maintain a beautiful and conducive learning space”, MEC Hlophe said.

The school already had a conservation agric food garden, but they were struggling to sustain it. Hlophe then donated Smart Agricultural Boxes, seedlings, trees, and garden tools. MEC Hlophe took time to encourage the young learners to commit to their studies, keep the school environment clean, prevention of teenage pregnancy and to report any form of abuse and sexual harassments-related incidents to their parents, and or teachers. She also donated dignity packs to learners.

The Principal, Mr ST Thwala welcomed the suport the MEC brought to the school.

WASTE MANAGEMENT AND RECYCLING WORKSHOPS INTENSIFIED

The Department of Agriculture, Rural Development, Land and Environmental Affairs continues with workshops on waste management and recycling with an aim to empower Waste Collectors across the province. A collaborative effort between the Zonda Insila Programme (ZIP) under the Department's Pollution and Waste Directorate, the national Department of Forestry, Fisheries and the Environment, PETCO, POLYCO, Plastic SA and Local Municipalities, the workshops are attended by Recyclers during which they get more information on Waste Management, Regulations, Waste Collection and Recyclable Material.

During the 4th Quarter alone, a series of informative workshops were held in different areas in the Nkangala District, Nkomazi, Bushbuckridge and Thaba Chweu Local Municipalities and the City of Mbombela. Most were accompanied by clean-up campaigns and clearing of litter and illegal dumping sites. This presented an opportunity for stakeholders in the waste management fraternity and ZIP participants to network and share best practices and experiences.

A SOLUTION FOR RABBIT DISEASE IN THE PIPELINE

Efforts are underway to find a solution to Rabbit Haemorrhagic Disease (RHD), a highly contagious viral disease, transmitted mainly through direct and indirect contact with mechanical vectors, including insects. The Department of Agriculture, Rural Development, Land and Environmetal Affairs collaborated with the University of Mpumalanga, Mpumalanga Tourism and Parks Agency and other key stakeholders in hosting a Wildlife/Livestock Interface Seminar in Mbombela on 23 January 2025, that brought together experts to consider available knowledge on the disease which affects both domestic and wild animals.

During the hybrid Seminar, professionals and academics in the fields of livestock production, animal health and veterinary science shared knowledge about the RHD virus, discussing how the disease manifests in the different host species and populations, its ecological and economic impact, including its effect on management interventions that are employed to curb its spread. An RHD Stakeholder Working Group has since been established in response to the emergence of the disease, to help ensure that the future management of RHD virus is knowledge-based.

Rabbit Haemorrhagic Disease is a highly contagious viral disease, transmitted mainly through direct and indirect contact with mechanical vectors, including insects. In Europe for example, wild and domestic populations of hares and rabbits serve as a reservoir of RHD, as listed by the World Organisation for Animal Health (WOAH). In South Africa, RHD is considered a controlled disease in terms of the Animal Diseases Act 35 of 1984, based on its historical absence in the country before its detection in October 2022.

EXPECTATIONS HIGH FOR THE INAUGURAL TEMVELO ENVIRONMENTAL AWARDS

The deadline for entries for the inaugural 2025 Temvelo Environmental Symposium, Expo and Awards has been extended to 8 April 2025, with the main symposium and Expo starting a day before the gala event sometime in May 2025. The Department of Agriculture, Rural Development, Land and Environmental Affairs officially announced during a media launch in December 2024, that the first ever Provincial Awards will be an annual event going forward, aimed at recognizing outstanding environmental contributions.

The Temvelo Symposium, Expo and Awards project has been successfully piloted for over five years in the Kingdom of Eswatini in partnership with the Government, UN Agencies, the EU, and the private sector. The respective categories will focus on Media, Smart Agriculture, Environment and Waste Management, Climate Change, Energy, Forestry, Waste, Biodiversity, Water and Sanitation, Tourism, Education and Conservation, among others. Application forms for entries are still available on www.temvelo.co.za until the closing date.

It was announced at the Media Launch that the Awards ceremony will be preceded by workshops and educational programmes leading up to the main gala event. It is envisaged that it will provide a platform to elevate environmental issues and foster a deeper understanding of their importance in as far as Climate Change mitigation is concerned. Organisations, government entities, schools, individuals and SMMEs who promote environmental stewardship in the Province have been encouraged to enter for these Awards.

JUNIOR LANDCARE PROGRAMME TOUCHING LIVES IN DELMAS

Phaphamani Secondary School in Botleng location in Delmas will soon have sustained vegetable production all year round, thanks to the Department of Agriculture, Rural Development, Land and Environmental Affairs' intervention through its Junior LandCare Programme that seeks to encourage young people at school level to love agriculture, and produce their own food. The DARDLEA drilled a borehole, constructed a tunnel and filled it up with Smart Agriculture Boxes, an irrigation system and production inputs. This project will ensure that the no-fee school, with 79% matric pass rate in 2024, is able to sustain its nutrition programme, and sell any surpluses to the local community for income generation.

Members of the Legislature's Portfolio Committee on Agriculture visited the school on an oversight mission on 13 February 2025; they commended the initiative, saying the learners from disadvantaged households will have access to healthy and nutritious meals. They called on the Principal and the School Governing Body to ensure that the learners take part in sustaining the planted vegetables and the infrastructure, to help them develop the love of agriculture.

Meanwhile, the Committee also lauded the Department for the level of assistance given to the women-led Thokoza Farms and Projects in Waaikraal outside Delmas. The MPLs also visited the 275ha mixed farming project to assess the Department's provision of research, extension, veterinary and agribusiness services. Operations at the SA-GAP certified Thokoza Farms, currently providing mentorship to four (4) Agric graduates, include grain, vegetable and livestock (cattle and piggery) production.

E-WASTE RECYCLING LAUNCH UNEARTHS HOARDED ELECTRONICS APPLIANCES

The launch of an e-Waste Recycling pilot project in Mkhuhlu near Hazyview on 31st January 2025 attracted hundreds of thousands on old and unused electronic waste that local people had been hoarding. Cellphones, computers, TVs, fridges, washing machines and many other electrical appliances were brought forward for recycling at the launch that took place at the local sports field. The electronic waste collected will be recycled by EPR Waste Association of South Africa (eWASA) and E-waste Recycling Authority (ERA). The previous owners of the appliances received vouchers based on the weight and market rates for each type of E-waste they brought.

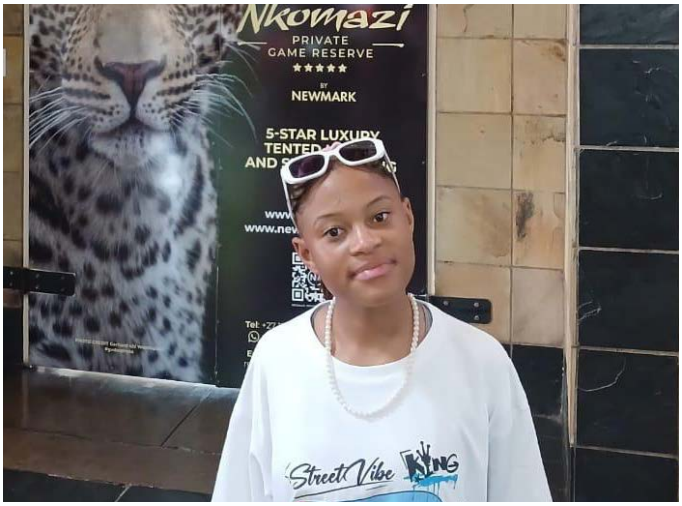
The Imbizo was led by Deputy Minister of Forestry, Fisheries and the Environment Bernice Swart, accompanied by her Police counterpart Mr Cassel Mathale, and DARDLEA MEC Nompumelelo Hlophe, among others. The imbizo also aimed at raising awareness and highlight the importance of responsible and sound waste management practices. A similar service delivery Imbizo took place the following day at the Schoemansdal Community Hall in Nkomazi, with thousands of electrical appliances brought up for recycling.

BENEFICIARIES APPLAUDS THE FFS PROGRAMME

A group of 35 emerging farmers who are part of the Phakamani Care For All Disability in Embalenhle in Govan Mbeki Local Municipality are looking forward to graduating after a year-long training through the Farmers Field School (FFS) program. During their transformative journey, the program covered technical issues like soil, crop and water management, seeds multiplication, Pest Management, Value Chain development and linkages to markets.

The Phakamani Care For All Disability FFS group also consists of youth and people with disabilities. They are in high spirits ahead of completing their training in July 2025. Phakamani Chairperson Sifiso Shongwe commended the Department of Agriculture, Rural Development, Land and Environmental Affairs' intervention in their plight, saying they look forward to helping other small-scale farmers with the knowledge and skills they have acquired during the FFS training.

FOUR YOUNG LOWVELDERS ON AN EXCURSION IN CT AFTER WINNING COMPETITION



Four young environmental champions from the Lowveld jetted off to Cape Town on 10 March 2025 for an adventurous and informative 3-day educational excursion. This after Thobeka Maseko from Portia Shabangu Secondary, Mbuso Maziba from Chayaza Secondary, Kopano Nlamane from Ndlamakhosi Senior High and Henrietta Goel from Pilgrims Rest City Secondary School had won in the Oceans-to-Land Environmental Education School Competition, an initiative by the national Department of Forestry, Fisheries and the Environment, facilitated in the province by the DARDLEA's Environmental Planning, Policy and Climate Change chief directorate.

The competition received 68 entries from learners in five provinces. They had to write an essay under the topic: *"Recognising the Oceans/Blue Economy in the Context of South Africa".* The competition was about educating and inspiring young minds to become future leaders in environmental conservation, climate action and the blue economy.

While in Cape Town, they explored maritime institutions like:

- Transnet National Port Authority – To understand South Africa's ports and trade industry;
- Two Oceans Aquarium – To explore marine biodiversity and conservation efforts;
- DAMEN Shipyard Port of Cape Town – To learn about ship building and engineering;
- Sea Point Research Aquarium – To discover ocean research and sustainability initiatives;
- SA Agulhas – To experience life on a research vessel.

ENHANCING AQUACULTURE SUSTAINABILITY:
THE IMPORTANCE OF EFFECTIVE FEED MANAGEMENT



Department of Agriculture, Rural Development, Land and Environmental Affairs (DARDLEA)
Chief Directorate: Research and Structured Agricultural Training
Directorate: Animal Research
Sub-directorate: Aquaculture, Technology and Game Development

Author: Mbona A.
***Corresponding Author** – tina.mbona@gmail.com*

Introduction

The escalating global demand for high-protein food sources, driven by exponential economic and demographic growth, highlights the critical role of the aquaculture industry in meeting this burgeoning need (Tran *et al.*, 2022). In order to meet the projected demands, the aquaculture industry must prioritize sustainable practices, innovative technologies, and efficient resource management. However, the growth of the industry also presents significant environmental and economic challenges.

One of the key factors in overcoming these challenges is effective fish feed management. Fish feed is one of the most expensive aquaculture inputs, accounting for more than 60% of total production costs (Hodar *et al.*, 2020). Fishmeal and fish oil, derived from small forage fish, are valuable products used in fish feed (Tacon and Metian, 2008; Peron *et al.*, 2010). The high nutritional value and digestibility of fishmeal and fish oil make the ideal for aquaculture in order to enhance growth rates and production yields (Tacon and Metian, 2008). However, the production of fish feed can have significant environmental impacts, including the depletion of wild fish stocks and the release of nutrients and waste into the environment. Therefore, effective fish feed management is crucial to ensuring the long-term sustainability of the aquaculture industry. This involves not only optimizing feed formulations and feeding strategies but also implementing efficient feed distribution systems and monitoring feed consumption.

Discussion

The aquaculture industry faces numerous challenges in fish feed management to ensure efficient feeding practices. To address these challenges, innovative strategies have been developed not only enhance the sustainability and efficiency of aquaculture operations but also contribute to improved fish health, reduced environmental impacts, and increased profitability.

Innovative strategies in feed management have been developed and they include:

a) Optimizing feed formulations

One of the key challenges in fish feed management is optimizing feed formulations to meet the nutritional needs of different fish species at various life stages (Shipton and Hasan, 2023). This requires a deep understanding of the nutritional requirements of different species, as well as the availability and cost of different feed ingredients.

Extensive research has been conducted to formulate alternative protein sources using plants and insect-based proteins. These new formulations not only reduce the industry's reliance on wild-caught fish but also offer significant cost savings (Nunes *et al.*, 2022; Kok *et al.*, 2020).

b) Implementing effective feeding strategies

Aquaculture operators must also implement efficient feeding strategies to minimize waste and ensure that fish are receiving the nutrients they need (Dauda *et al.*, 2019). This can involve the use of automated feeding systems, which use sensors to monitor feed consumption and adjust feeding rates accordingly. Farmed fish are typically fed to satiation or with fixed ration, based on a percentage of their body weight (Eriegha and Ekokotu, 2017). Both approaches have advantages and disadvantages. Feeding to satiation allows farmers to observe fish feeding behaviour and adjust feeding accordingly (Li and Robinson, 2008). Trained farmers can minimize feed waste and maximize intake. Feeding with fixed ration requires accurate knowledge of fish stock numbers and weights. Periodic sampling is required to adjust feeding rates.

c) Monitoring feed consumption

Monitoring feed consumption is critical to effective fish feed management (Robb and Crampton, 2013). This involves tracking feeding behaviour, monitoring water quality, and adjusting feeding strategies accordingly.

By monitoring feed consumption, aquaculture operators can identify areas for improvement and make evidence-based decisions to optimize their feeding strategies (Aljehani *et al.*, 2025). This not only improves the efficiency and sustainability of their operations but also helps to reduce costs and improve profitability.

Conclusion

As the aquaculture industry continues to grow and evolve, the importance of effective feeding management will only continue to increase. Effective feeding management is crucial for the sustainability of the aquaculture industry. Optimizing feed formulations, implementing efficient feeding strategies, and monitoring consumption can reduce waste, improve efficiency, and promote sustainability.

Recommendations

To drive innovation and improvement in aquaculture operations, it is essential to support ongoing research and development in fish feed management strategies. Collaboration with industry experts and researchers is crucial to staying updated on best practices, ultimately enabling aquaculture operators to enhance operational efficiency and sustainability, reduce costs and increase profitability as well as promote environmentally responsible practices.

References

Aljehani F., N'Doye I. and Laleg-Kirati. 2025. Feeding control and water quality monitoring on bio-energetic fish growth modelling: Opportunities and challenges. Aquacultural Engineering 109: 1-10.

Dauda A.B., Ajadi A., Tola-Fabunmi A.S. and Akinwole A.O. 2019. Waste production in aquaculture: Sources, components and managements in different culture systems. Aquaculture and Fisheries 4 (3): 81-88.

Eriegha O.J. and Ekokotu P.A. 2017. Factors affecting feed intake in cultured fish species: A review. Animal Research International 14 (2): 2697-2709.

Hodar A. R., Vasava, R. J., Mahavadiya D. R., and Joshi, N. H. 2020. Fish meal and fish oil replacement for aqua feed formulation by using alternative sources: A review. Journal of Experimental Zoology 23 (1): 13-21.

Kok B., Malcorps W., Tlusty M.F. Eltholth M.M. Auchterlonie N.A., Little D.C., Harmsen R., Newton R.W. and Davies S.J. 2020. Fish as feed: Using economic allocation to quantify the Fish In: Fish Out ratio of major fed aquaculture species. Aquaculture 528: 1-12.

Li H. and Robinson E.H. 2008. Feeding catfish in commercial ponds. *Southern Regional Aquaculture Center* **181**: 1-5.

Nunes A.J.P., Dalen L.L., Leonardi G. and Burri L. 2022. Developing sustainable, cost-effective and high-performance shrimp feed formulations containing low fish meal levels. *Aquaculture Reports* **27**: 1-12.

Peron G., Mittaine J.F. and Le Gallic B. 2010. Where do fishmeal and fish oil products come from? An analysis of the conversion ratios in the global fishmeal industry. *Marine Policy* **34** (4), 815-820.

Robb D.H.F. and Crampton V.O. 2013. On-farm feeding and feed management: Perspectives from the fish feed industry. On-farm feeding and feed management in aquaculture. FAO Fisheries and Aquaculture Technical Paper **583** Rome. pp. 489–518.

Shipton T.A. and Hasan M.R. 2013. An overview of the current status of feed management practices. On-farm feeding and feed management in aquaculture. FAO Fisheries and Aquaculture Technical Paper **583** Rome. pp. 3–20.

Tacon A. and Metian M. 2008. Global Overview on the Use of Fish Meal and Fish Oil in Industrially Compounded Aquafeeds: Trends and Future Prospects. *Aquaculture* **285** (1):146-158.

Tran N., Chu L., Chan C.Y., Peart J., Nasr-Allah A.M. and Charo-Karisa H. Prospects of fish supply-demand and its implications for food and nutrition security in Egypt. *Marine Policy* **146**: 1-10.

WHERE TO FIND US

Head Office

Samora Machel Building, Floor 1&2
No 7 Government Boulevard
Private Bag X 11219
Riverside Park
Nelspruit 1200
Republic of South Africa
Tel: +27 13 766 6068
Email: Infodardlea@mpg.gov.za

Ehlanzeni District Office

Building 4, Aqua Street
Riverside Park
P.o Box 266
Nelspruit 1200
Republic of South Africa
Tel: +27 13 759 4000

Bohlabela Region

101 Main Road
Thulamahashe
Private Bag X 1321
Thulamahashe 1365
Republic of South Africa
Tel: +27 13 773 1192

Nkangala District Office

Ebhudlweni Building, Governement Complex
KwaMhlanga 1022
Republic of South Africa
Private Bag x 4017
KwaMhlanga

Gert Sibande District Office

44 Church Street
Ermelo 2350
Republic of South Africa
Private x 9071
Ermelo 2350
Republic of South Africa
Tel: +27 (0)17 819 2076
Fax: +27 (0)17 811 0774