MAXIMUM residue levels

Active substance MRLs – what are they? By **Paula Bester**

Maximum Residue Levels (MRLs) are the maximum legally permitted amounts of active substances in plant protection products (PPPs) permitted on foodstuffs or crops, if these agricultural products are applied correctly, following Good Agricultural Practice. In essence, compliance with MRLs indicates if PPPs are used responsibly and acts as a trading standard for imported and exported food.

Paula Bester

How are local and international MRLs established?

MRLs are established using scientific data and meticulous calculations to prevent consumer harm. An independent, international scientific group known as the Joint Food and Agriculture Organization (FAO)/World Health Organization (WHO) conducts risk assessments based on all data submitted for national registrations of PPPs worldwide, as well as all peer-reviewed scientific publications.

Then there's the No Observed Adverse Effect Level (NOAEL), which is determined from long-term toxicology studies for active substances. Stemming from this data, health-based guidance values like the acceptable daily intake (ADI) and acute reference dose (ARfD) are derived. The ADI is the amount of an active substance that can be consumed daily over a lifetime without adverse health effects. The ADI is calculated by applying an uncertainty factor of 100 (or more) to the NOAEL obtained from the most sensitive test species. And the ARfD is the amount of an active substance that can be consumed in a single day without adverse health effects. These acceptable intake levels take into account all individuals in a population, including the most vulnerable groups like pregnant women, children and the elderly. These values are used in scientific calculators by international risk assessors and governments, to establish MRLs.

> MRLs could become a trade barrier when exporting to countries with different MRLs for the same crop.

When setting MRLs, dietary intake, food variety, and consumption patterns in the specific country are also considered. The Codex MRLs are the reference for international trade in food.

MRLs are established in each country at the lowest achievable level consistent with critical Good Agricultural Practices (cGAP). The cGAP refers to the most severe treatment one might contemplate for registration of the PPP, i.e., the highest permissible dosage rate and number of applications with the shortest interval between applications and harvest. The safety of the expected residues, based on the cGAP, is assessed against the health-based guidance values (e.g., ADI and ARfD). Certain active substances have no MRL and are essentially exempted from a tolerance test due to their inherent non-hazardous properties.

In SA, MRLs are gazetted by the Department of Health and are based on product registration data submitted under Act 36 (The Fertilizers, Farm Feeds, Agricultural Remedies and Stock Remedies Act No. 36 of 1947).

The effect on trade

MRLs could become a trade barrier when exporting to countries with different MRLs for the same crop. Despite international efforts to harmonise MRLs, there are still many discrepancies (mainly due to a lack of coordination and the fact that some countries do not produce the same crops). Some countries – like those in the EU – maintain a comprehensive MRL list, while others publish very few MRLs of their own and largely rely on the Codex MRLs. Additionally, certain retailers impose their own residue limits (based on non-scientific criteria) that are often much lower than the legal tolerances, creating an even more divergent set of requirements in a market.

Exporting growers must adhere to the lowest MRL between the destination markets and the country-of-origin MRL. The variable nature of MRLs necessitates growers and exporters staying updated with related changes. Sources like the CGA/CRI's Recommended Usage Restrictions of Plant Protection Products provide guidance on Southern African export citrus where MRLs and pre-empted changes in main markets are indicated.

Transformation through training

Reflecting on the Economic Transformation of Black Citrus Growers. By **Citrus Academy**

The Economic Transformation of Black Citrus Growers (ETBCG) has now concluded, having established a wide footprint, with 11 delivery sites across five provinces, including Thohoyandou, Nkwaleni, the Sundays River Valley and Citrusdal.

This dynamic skills development initiative was launched by the Citrus Growers' Association (CGA) of Southern Africa, in partnership with the Jobs Fund, the Land Bank, the Department of Agriculture, Land Reform and Rural Development (DALRRD), Agricultural Sector Education Training Authority (AgriSETA), the Lima Rural Development Foundation (lima is Zulu for plant/cultivate), and First National Bank.

An AgriSETA-funded skills development component was added to the ETBCG programme to enable new and existing employees of beneficiaries to develop their knowledge and further their careers.

The Citrus Academy was the implementation agent for this skills development component. Marking the end of the ETBCG programme, role-players gathered in Pretoria on 14 November to take stock and to look towards the future.

Jacomien de Klerk, General Manager of the Citrus Academy, led discussions on the achievements of the programme. "One can ask: how much and how many? And the answers to the question prove how a small group of passionate people had a huge impact," said De Klerk while detailing the figures of the initiative.

R12.9 million rand was channelled into 15 learnerships and 28 skills programmes, changing the lives of 1 039 participants. One figure that stands out as well is the pages of printed learning material – no less than 387 067. This formed the basis of knowledge transfers in areas such as plant production, business administration, and packhouse work.

The skills component commenced in October 2020, but its initial roll-out was complicated by the national Covid-19 response measures. At the recent gathering in Pretoria, many of the delegates noted how running the programme during Covid was indeed a challenge. However, it showed how adaptive and resilient the people in the citrus industry are. New plans were made and methods of learning changed, without sacrificing training quality.

> Knowledge and know-how are essential for the transformation of the agriculture sector.

During the discussions, it also became clear how important skills initiatives are for rural development. Often, emphasis is placed on infrastructure, the availability of land, market access and logistics, while skills do not receive much attention. What the ETBCG programme's skills component has shown, is that knowledge and know-how are essential for the transformation of the agriculture sector. Without the correct skills, new agricultural infrastructure, for instance, means very little.

Another topic of discussion was the importance of recruiting. Thanks to great relationships with growers and the local communities in their areas, the right candidates for the right courses were identified – making sure lives were changed.

It became clear from the feedback by the delegates that there is a hunger for knowledge and self-improvement in many communities, and this is why more initiatives such as the ETBCG skills component are necessary.

Building out and deepening the offering of the ETBCG skills component in potential future initiatives would create immense opportunities for improvement, not just for those who seek education, but also for the citrus industry at large.