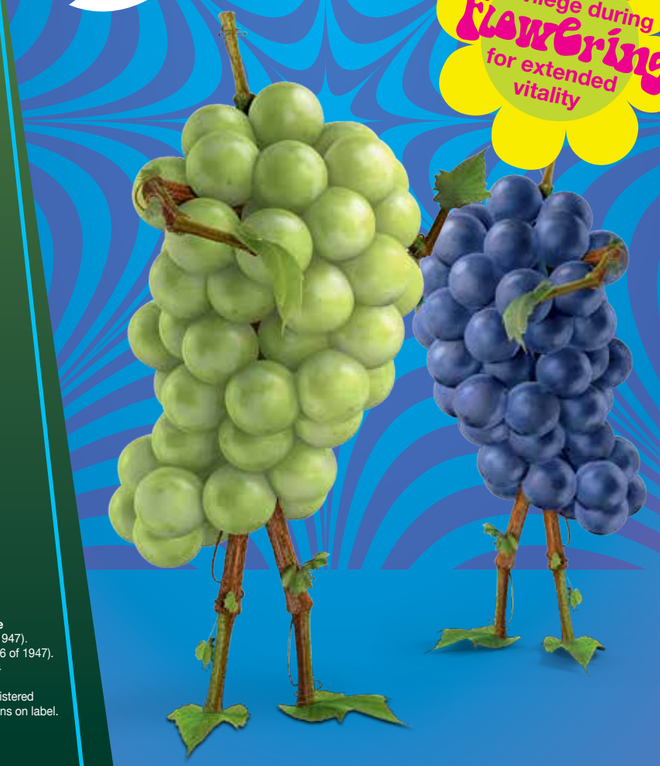

Adoption of IPM in citrus
Key drivers

Citrus Growers' Association of Southern Africa

There has been an unmistakeable surge in emphasis on producing food that has less of an impact on the planet. By Paul Hardman

The shift towards more climate friendly food production is captured in policies like the EU farm-to-fork strategy, and packaged as justification for the requirements by some retailers. Therefore, it is prudent to "step back" and consider the underlying forces influencing growers' decisions on how they go about producing citrus for the export market.

What factors are influencing crop protection decision-makers?

The Citrus Growers Association of Southern Africa (CGA) and Citrus Research International (CRI) have been concerned about how following retailers' food production requirements has actually had a negative impact on sustainability, particularly when it comes to the proper implementation of integrated pest management (IPM). So how effective are these commercial requirements at producing the desired outcome for sustainable food production?

The practice of IPM seeks to use plant protection products in tandem with the natural environment, and to intervene only when the level of a pest goes beyond a specific point. The CGA and CRI have observed that growers are often compelled to adopt preventative pest control measures, irrespective of the level of the pest presence in the orchard. Such pre-programmed actions could completely undermine IPM and may be the cause of subsequent problems that require further interventions.

Furthermore, as the farm-to-fork (F2F) strategy is rolled out, the expectation is that some plant protection products will no longer be available due to their authorisation being withdrawn in the EU, or the maximum residue levels (MRLs) lowered. The F2F strategy includes trying to reduce the use of highly hazardous pesticides by 50% by 2030, and to increase organic production to 25% of agricultural production in the EU. How will this impact on future pest and disease management? How will the gaps be filled?

To answer these key questions and to understand the underlying reality faced by citrus producers, elements of the recent Citrus Sustainability Survey focused on IPM considerations. The survey was initiated at the Citrus Sustainability Forum (CSF) meeting held in February this year and was designed to gather information from key decision-makers across the supply chain.

Table 1: Factors responsible for why IPM is not adopted more widely (1 = minor importance and 10 = major importance)

	Mean	Median	Standard deviation
Phytosanitary requirements	7.58	8	2.31
Loss of key active substances helpful in IPM programmes	7.52	8	2.47
Retailer requirements	7.4	8	2.54
Lack of registrations for suitable non-chemical alternatives	7.23	8	2.3
Lack of effectiveness of non-chemical solutions	7.03	8	2.29
Higher input costs for IPM-friendly programmes	6.55	7	2.47
Practical/operational factors preventing IPM adoption	6.24	6	2.15
Lack of IPM knowledge	5.57	6	2.36
Other	4.08	4.5	2.71

Results of the CSF Citrus sustainability survey

The results from the survey provide some clear insights into the factors driving IPM adoption: 80% of the respondents indicated that the adoption of IPM principles had increased over the last decade. Of course, this is a positive development, but it does not quite resonate with the experience by CRI researchers who indicated that IPM was at its peak in the 1990s. Table 1 looks at the reasons why IPM is not adopted more widely – where a score of 1 rates the factor having minor importance and 10 having major importance.

Phytosanitary requirements top the list, indicating the imperative for growers to be compliant with the plant health regulations set by importing countries. The citrus black spot (CBS) rules in the EU are a typical example, where instances of non-compliance can result in access to the market being withdrawn for the production unit. This has significantly adverse financial and operational implications for the business – a scenario that has to be avoided. There are also potential punitive implications for the country as a whole.

Secondly, respondents believe that the loss of IPM compatible active substances has hamstrung their ability to follow IPM principles. The concern is that this pattern of losing key active substances may continue with products like Imidacloprid, currently under review in the EU. Finding alternatives that provide a high level of control and that work with the biological realities in the orchard is challenging and clearly obstructs following IPM approaches.

Thirdly, 76% of the respondents felt that retailer requirements were an important reason why IPM was not adopted (i.e. those giving this factor a score of 7 or more out of 10). There are a few possible explanations for this high scoring, including:

Table 2: Stakeholder scores on how problematic each retailer's requirements are on IPM adoption (1 = minor and 10 = major)

Retailer	Mean	Median	Standard deviation	Variance
Lild	8.75	9	1.39	1.93
Rewe	8.57	8	1.13	1.29
Kaufland	8.50	9	1.76	3.10
Tesco	8.33	9	2.25	5.07
Aldi Nord	8.25	9	2.36	5.58
Waitrose	8.17	9	2.64	6.97
Edeka	8.14	8	1.35	1.81
Aldi Sud	8.00	9	2.16	4.67
Tegut	8.00	8	1.41	2.00
Aldi Market	7.89	8	1.90	3.61
Sainsbury (js)	7.83	9	2.14	4.57
M&S	7.67	8	2.58	6.67
Morrisons	7.67	9	3.01	9.07
Dohle	7.50	8	0.71	0.50
Delhaize	7.00	6	3.00	9.00
Tengelmann	7.00	7	0.00	0.00
Coop	6.80	7	1.79	3.20
Globus	6.67	6	1.15	1.33
Norma	6.50	7	2.12	4.50
Ahold/Elbert Heijn	6.22	6	2.33	5.44
Bama	6.00	5	2.92	8.50
Metro	5.80	6	1.48	2.20
Netto	5.67	5	1.15	1.33
Asda	5.60	6	2.97	8.80
Loblaws	4.75	5	2.22	4.92

- Retailer requirements deviate from good agricultural practices (GAP) – therefore making available products less effective
- The timing of applications is compromised
- Managing pests and diseases is complex and requires an approach that takes into account all the pests and diseases, and requirements across a number of markets. Simply blacklisting a product is in conflict with the need to control the pest or disease
- The requirement is typically based on EU climatic conditions and range of pests and diseases, and does not align with the Southern African context.

Clearly, wherever the retailer requirements are not sensitive to the context in which citrus is produced, they are unlikely to promote sustainable production.

The remaining factors identified as reasons why IPM is not adopted more widely point to the lack of effective, available alternatives and the practicalities around adopting these alternatives. CRI have an ongoing programme to investigate and evaluate alternatives, especially in the postharvest arena. Unfortunately, despite all this investment, replacements for the current suite of plant protection products are difficult to come by.

The lack of IPM knowledge is also a concern, particularly given the number of potential changes in the crop protection programmes that may be required in the next few years. Together with the Citrus Academy, there appears to be scope for more technology transfer opportunities from CRI.

Table 3: Stakeholder scores on the difficulty of sustainability requirements per retailer (1 = no problem and 10 = very challenging)

Retailer	Mean	Median	Standard deviation	Variance
Rewe	8.00	7	1.41	2.00
Kaufland	8.00	9	2.55	6.50
Sainsbury (js)	7.83	8	1.94	3.77
Edeka	7.63	7	1.85	3.41
Waitrose	7.33	8	2.50	6.27
Eesco	7.14	8	2.73	7.48
Morrisons	6.71	7	2.56	6.57
Lild	6.71	7	2.93	8.57
M&S	6.67	7	3.01	9.07
Delhaize	6.67	7	2.34	5.47
Loblaws	6.60	8	3.21	10.30
Aldi Nord	6.60	6	1.52	2.30
Netto	6.33	7	1.15	1.33
Aldi Market	6.33	7	1.75	3.07
Dohle	6.25	7	0.96	0.92
Aldi Sud	6.20	6	1.92	3.70
Ahold/Elbert Heijn	6.14	7	2.91	8.48
Tengelmann	6.00	6	1.41	2.00
Bama	5.86	7	2.27	5.14
Asda	5.80	7	3.70	13.70
Coop	5.33	6	2.58	6.67
Norma	5.00	5	2.83	8.00
Tegut	4.50	5	3.54	12.50
Metro	4.50	5	2.65	7.00
Globus	4.50	5	2.52	6.33

The perceived impact of individual retailers

The data also shows which retailers have the largest perceived negative impact on IPM (see Table 2). Of the retailers that had a score of 8 or higher out of 10 (where 1 = minor and 10 = major), 80 % are based in Germany. This strongly indicates that the approach adopted in Germany has a profoundly negative impact on growers' IPM strategies. The complete results of the questionnaire will be reported at the next CSF scheduled for August this year.

Furthermore, how retailers compare from a general sustainability perspective was also captured (see Table 3). On a scale of 1 (no problems) to 10 (very challenging) the retailers were scored in relation to general sustainability requirements (e.g. social and environmental audits, water, soil health). Of the retailers that scored 7 or more, three were from the UK and the balance from Germany, with two German retailers at the top of the list. This spread reflects the outlook adopted by UK retailers, and how their demands impact on sustainability, beyond just food safety requirements.

Conclusion

While growers and stakeholders believe adoption of IPM principles has increased in the last 10 years, data from the Citrus Sustainability Survey has provided evidence to uphold the view that the adoption of IPM principles on farms is largely being curtailed by external factors imposed on growers. Having to comply with phytosanitary requirements and the loss of key IPM-compatible active substances was rated as the most important factors, followed by the impact of retailer requirements. Drilling into the data shows that German retailer requirements are believed to be the most challenging for producers seeking to apply IPM, while UK and German retailers both score highly on their impact on general sustainability.

Looking ahead, there is scope to increase knowledge around IPM across all stakeholders, and this will become increasingly relevant as the crop protection landscape changes, as policies come into play that will limit options for growers. The relentless search for IPM compatible alternatives must continue.