

Background and problem

- ❑ In 2012 the Global Plan for Insecticide Resistance Management (GPIRM)¹ outlined a series of recommendations to address the growing threat of insecticide resistance in malaria control.
- ❑ GPIRM recommended pre-emptive annual rotation of IRS products.
- ❑ Many countries responded by strengthening insecticide resistance monitoring programmes and developing insecticide resistance management (IRM) plans.
- ❑ The ability of country programmes to rotate IRS products with different modes of action has been impeded by widespread resistance to existing products and the lack of multiple, effective products to use in a rotation strategy.
- ❑ Given these realities, most control programmes have been forced to focus on mitigation and management, after the fact, of already high and widespread levels of reduced susceptibility to pyrethroids and carbamates.
- ❑ Many IRS programmes have had no choice but to rely on repeated use of a micro-encapsulated formulation of pirimiphos-methyl (Actellic® 300 CS) as a last line product for *Anopheles* control.
- ❑ With the WHO PQ listing of Sumitomo's SumiShield® 50WG in October 2017, programmes now have the option to procure a new, long-lasting product for IRS.
- ❑ 100% shifts to the new product might be technically sensible in the short term but would undermine the goals of increasing competition, reducing product cost, and reducing market volatility of IRS products.
- ❑ Continued volatility could very easily lead not only to higher prices but to manufacturers withdrawing from the market.

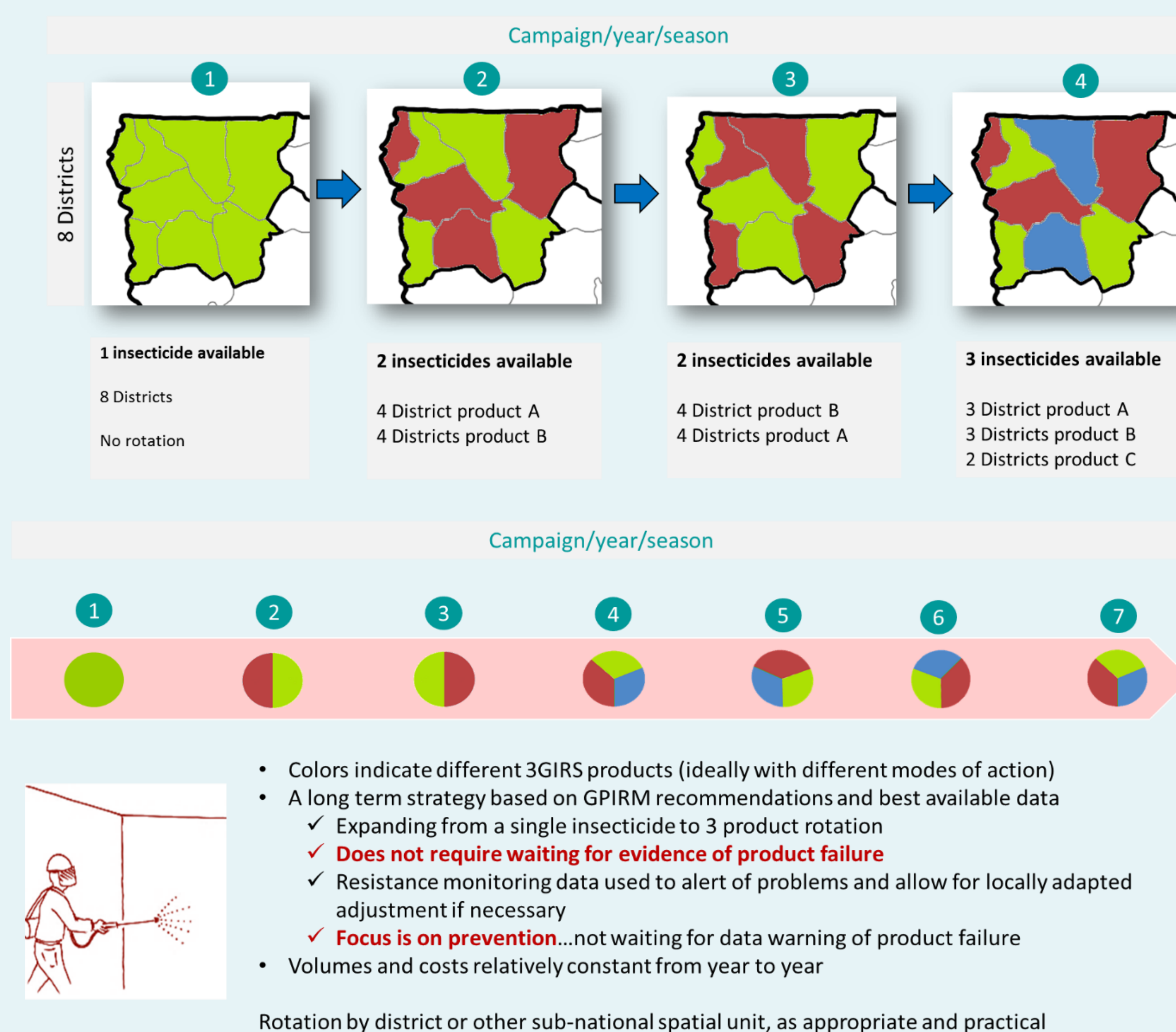
Proposed solution

- ❑ Experts agree that pre-emptively rotating insecticides is best-practice for insecticide resistance management and that decision makers should not wait for signs of resistance to rotate products.²
- ❑ This is clearly highlighted in GPIRM which states:

*"lack of full information and evidence in some key areas need not preclude pre-emptive action to address insecticide resistance."*⁴
- ❑ With the launch of SumiShield® 50 WG, a new mode of action "long-lasting" IRS product—and other 3GIRS* products to follow—the pre-emptive annual rotation goal outlined in GPIRM is achievable.
- ❑ Experts have proposed a new strategic approach based on pre-emptive rotation of multiple 3GIRS products within a country to:
 - Support resistance prevention best practices
 - Support stable, multi-year forecasts
 - Support reduced price through competition
- ❑ Decision makers can now take a strategic approach to simultaneously prevent resistance through pre-emptive rotation while also positively influencing the IRS market through reduced market volatility, increased competition, and reduced prices.
- ❑ In 2018 several African IRS programmes will implement insecticide resistance prevention and management through the simultaneous use of both available 3GIRS products as part of a sub-national rotation strategy which pre-emptively rotates 3GIRS products every spray campaign (see Figures 1 and 2).

* There are currently two products qualified by Unitaid as 3GIRS: Actellic® 300Cs and SumiShield® 50WG

Example of District-level rotation



Benefits of a subnational, pre-emptive rotation strategy

- ❑ A pre-emptive rotation strategy based on using multiple, effective IRS products, within a country at a district or other operationally feasible administrative unit as appropriate, promises to:
 - ✓ Support resistance prevention best practices
 - ✓ Provide increased competition which should promote reduced prices
 - ✓ Facilitate stable, multi-year forecasts of multiple products with different modes of action.

2018 NgenIRS Outlook

7 of 14 NgenIRS Countries are planning to spray both Actellic® 300CS and SumiShield® 50WG in 2018

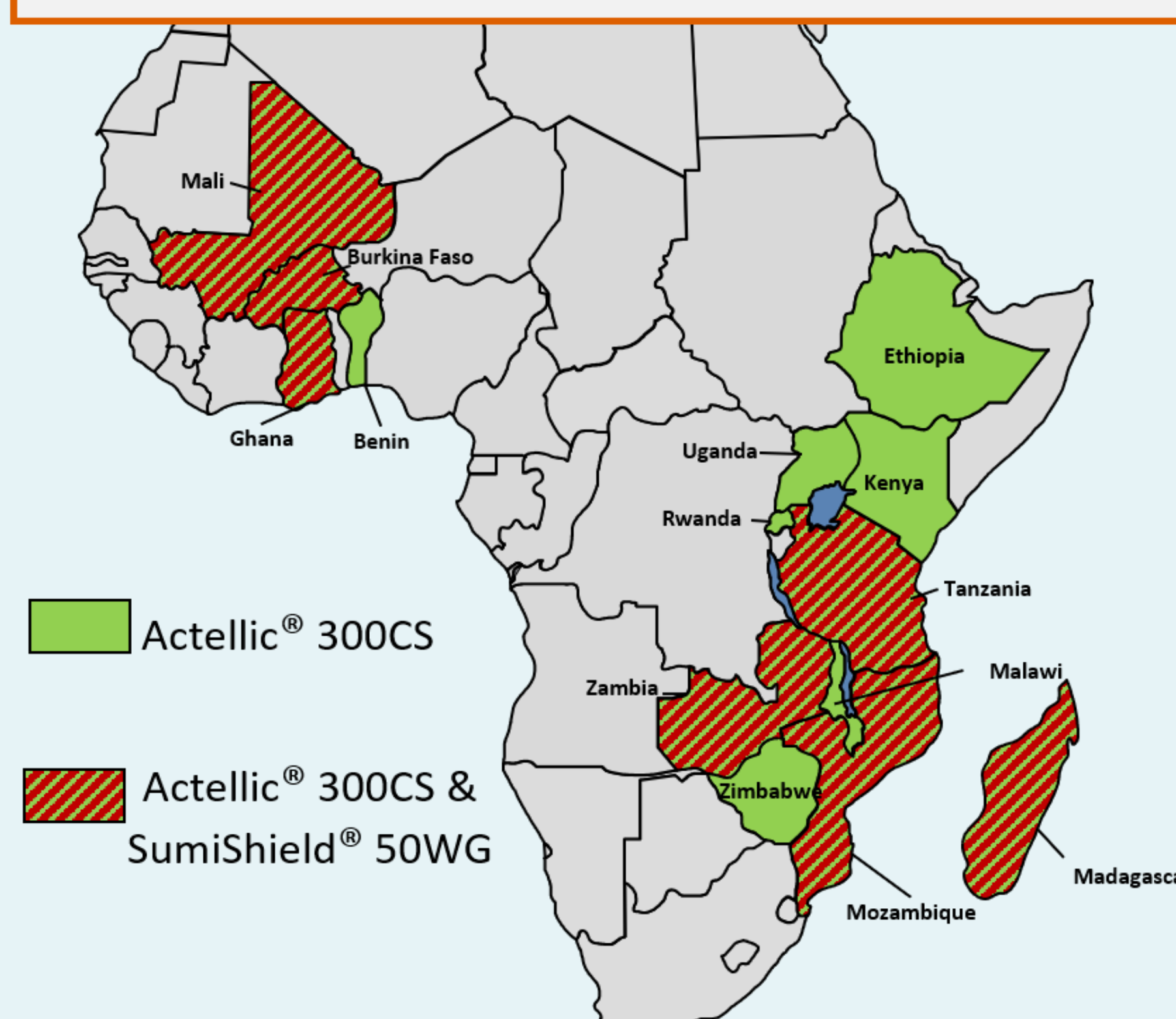


Figure 2. 2018 Outlook of adoption of both 3GIRS products by African Malaria Control Programmes

References:

1. The Global Plan for Insecticide Resistance Management in Malaria Vectors. WHO GMP 2012.
2. President's Malaria Initiative Technical Guidance, February 2018. <https://www.pmi.gov/resource-library/pmi-publications/guidance>
3. Malaria Policy Advisory Committee Meeting. 10-12 September 2014, Geneva, Switzerland. Background document for Session 3. Update on implementation of the Global plan for insecticide resistance management in malaria vectors. <http://www.who.int/malaria/mpac/mpac-sept2014-gpirm-implementation-update.pdf>
4. Mnzava et al 2015. Implementation of the global plan for insecticide resistance management in malaria vectors: progress, challenges and the way forward. <https://malariajournal.biomedcentral.com/articles/10.1186/s12936-015-0693-4>