Summary of Outcomes from the Breakout Session

The Breakout Session was opened by Dr. Sasireka Rajendran, Asia Regional Manager, Minor Use Foundation, followed by speakers from various sectors (government, industry, academics, and NGOs) sharing insights on the process of setting Maximum Residue Levels (MRLs) and addressing technical challenges in pesticide residue analysis. Here's a summary of the key insights presented from the speakers:

1. **Current regulatory landscape for pesticide residues in the Philippines and efforts in international harmonization:** This presentation from Ms. Kriz Anne Joi L. Minguez, Chemist from Fertilizer and Pesticide Authority (FPA) of Philippines discussed the current regulatory landscape in the country, focusing on the role of the FPA in establishing tolerance levels and promoting good agricultural practices for the use of pesticides in raw agricultural commodities, with pesticide product registration as one of the key approaches. The discussion covered the current challenges in establishing and enforcing MRLs and the

ongoing efforts to harmonize national regulations with international standards to enhance the Philippines ability to engage in global trade. Such alignment fosters agricultural competitiveness and helps the country participate in the global food supply chain while advancing food safety and security.

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2. **Monitoring Pesticide Residues in Agricultural Commodities – Current Advancements and Challenges:** Mr. Mark Kenneth Gonzales from the Bureau of Plant Industry (BPI) shared insights on monitoring pesticide residues under the Food Safety Act of 2013. The Plant Product Safety Services Division of the BPI monitors pesticide residues in agricultural commodities to ensure food safety in compliance with the Food Safety Act of 2013 (RA 10611). A robust monitoring plan covering a wide range of agricultural crops common in the Philippine markets showed an average 7.2% of target crops annually have detection that exceeds the MRLs based on PNS and Codex standards. Improvements in sample preparation and screening methods are being implemented to address challenges such as matrix effects and the wide range of active ingredients found in agricultural commodities. He emphasized BPI's close collaboration with the FPA to evaluate MRL levels, which involves analyzing residues in various crops using standardized and confirmatory methods.

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3. **MRL Setting from a Codex Perspective:** Ms. Veronica Picado, Technical Director, Minor Use Foundation (MUF) discussed how Codex promotes the development of international standards for MRLs. This ensures alignment in the regulation of pesticide residues globally, facilitating international trade while maintaining food safety. Ms. Veronica explained the role of Codex in setting international food safety standards, particularly focusing on MRLs for pesticides. She discussed how Codex reviews chemicals and MRLs submitted by registrants

through a structured nomination process, ensuring adherence to safety guidelines. She highlighted the MUF's involvement in generating essential data to support MRLs, especially for minor-use crops like herbs and spices. She emphasized that Codex accepts monitoring data from countries that follow their guidelines, enabling these nations to demonstrate compliance and contribute to the establishment of international MRLs.

Access presentation slides: 24. Veronica Picado - Principles of MRL Establishment and Implementation.pdf

4. **Regulatory analysis of pesticides in spices-challenges and way forward:** Dr. Kaushik Banerjee highlighted the difficulties in analyzing pesticide residues in spices and herbs due to complex food matrices. He explained that achieving low Levels of Quantification (LOQ) is often challenging because of strong matrix effects, particularly in spices like turmeric and black pepper. Dr. Kaushik Banerjee emphasized the importance of a systematic approach to improving pesticide residue analysis in spices and herbs. He recommended establishing a comprehensive priority list of pesticides for monitoring and setting achievable Levels of Quantification (LOQs) based on the available analytical instruments in the region. To enhance accuracy, he suggested optimizing and validating sample preparation workflows, including using quality control matrix spikes in each sequence to confirm reporting

limits. Dr. Banerjee also advised selecting matrix-specific Multiple Reaction Monitoring (MRM) transitions and incorporating tailored cleanup steps and dilutions before injection to minimize matrix effects. He highlighted the use of matrix-based certified reference materials to improve method accuracy and stressed the need for well-maintained instruments, incorporating practices like backflush and guard columns. Finally, he called for stronger collaboration between reference laboratories and technology providers to achieve better analytical performance.

Access presentation slides: 26. Kaushik Banerji - Standardization in Pesticide Residue Monitoring and Testing.pdf

5. **Working Group on Pesticide Multiresidue Analysis in Culinary Herbs and Spices:** The presentation by Ms. YiFan Jiang, Co-Chair of Working Group focused on the challenges and opportunities in pesticide multiresidue analysis for culinary herbs and spices. Key issues highlighted include the lack of internationally harmonized nomenclature for herbs and spices, which complicates the understanding of applicable MRLs in setting regulatory control limits. The presentation emphasizes the complexities involved in testing spice mixtures due to varying ingredient compositions and their effects on analytical methods. It discusses the limitations of current analytical techniques in achieving low levels of detection limits, particularly in the context of regulatory frameworks where the default MRLs are often below the technically achievable LOQs for herbs and spices. The presentation highlighted the call for collaboration among stakeholders on these issues to improve analytical methodologies and regulatory guidelines in this area.

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6. **Panel discussion themed "Managing Pesticide Residues in Culinary Herbs and Spices":** During the panel discussion moderated by Dr. Sasireka Rajendran, panelists offered a comprehensive look at how regulators, scientists, and international bodies collaborate to manage pesticide residues in the region's herbs and spices, addressing key trade and safety issues, and had an engaging discussion with the audience on various questions and recommendations being raised. Below is a summary of the panel discussion outcomes:

i. Very few MRLs for pesticides in herbs and spices have been established in Codex and national regulations. In the absence of established MRLs, a “default” MRL or “non-tolerance” principle is often applied. It is important to note that the assignment of a default MRL or non-tolerance for a pesticide residue is not always due to food safety concerns but reflects the lack of pesticide data specific to these commodities. To address this, **collaboration between industry and government authorities is encouraged to generate MRL data**, **with platforms like Minor Use Foundation supporting capacity building efforts**.

ii. Due to the strong matrix effects in dried herbs and spices, current analytical methods often struggle to achieve the low levels of LOQs below the default MRL of 0.01ppm which is commonly applied by national authorities. This issue has gained increased attention among international and national regulatory authorities. Recently, the Food Safety and Standards Authority of India (FSSAI) amended its pesticide MRL regulations, raising the default MRL for herbs and spices from 0.01ppm to 0.1ppm. It was therefore suggested that **when establishing official testing methods for pesticide residues in herbs and spices, careful consideration**

should be given to the practically achievable LOQs based on available instruments in the region.

iii. Food industry often struggles with non-harmonized MRL regulations across countries and hence lack of lab capability to perform pesticide residue testing that captures all export market requirements. Establishing a harmonized testing method for pesticide multiresidue analysis in herbs and spices is essential not only for monitoring the compliance of domestic agrifood products, but also to help local exporters meet international market requirements and reduce non-compliance costs, thus facilitating trade. This should be supported by capacity building and standardization among laboratories to ensure consistency and trust in test results. **Initiatives like the One Lab program led by the Department of Science and Technology - Industrial Technology Development Institute (DOST-ITDI) of the Philippines and the efforts by the AOAC-SEA Working Group offer valuable platforms for laboratories and stakeholders to collaborate and achieve consensus**.