

Table 1.2 Critical Issues in Nine Major FQPA Science Policies

#	Short Name	Major Focus of Public Comments	Responsiveness to Public Comments
1	Extra 10-X Safety Factor	All Parties -- What constitutes "reliable data"? Industry -- Must be clear evidence of adverse health outcomes in young animals, not just evidence of impacts on pregnant animals. Requested time to fill data gaps and no 10-X in interim. Need to avoid duplicate safety factors driven by same concerns -- often called the double counting problem. Public health advocates argued for 10-X for all OPs in absence of developmental studies and in case of exposure data gaps.	Tox issues -- Clear steps taken to state basis for each safety factor, thereby avoiding "double counting." "Reliable data" has been clarified both in most recent draft and actual practice. 3-X imposed when no developmental neurotox data for some OPs. Slow progress in identifying and dealing with endocrine disruptors. Exposure issues -- EPA is addressing via "conservative assumptions" in exposure models.
2	Key Choices Dietary Exposure	How to handle "outlier" data points? The 99.9th level is too strict, not strict enough. Are the tails of the distribution unstable/unreliable? Should it apply to one chemical at a time, or the results of a cumulative risk assessment? Should a sliding scale be used -- i.e., more toxic the effect, the stricter the standard? Appropriate uses of Monte Carlo (probabilistic models) for acute risk assessment. Role of use data and changes in rates and PHIs.	Monte Carlo methods embraced. "Outliers" will not be purged from datasets; any clearly erroneous or implausible values are checked, corrected. The 99.9th percentile of exposure (not consumption) will be applied one chemical at a time, and may or may not be used with results of a cumulative risk assessment. The "sliding scale" approach is rejected as impractical and unnecessary (i.e., variable toxicity taken into account in other ways).
3	Threshold of Regulation and LOD	Risk trading issues -- How to avoid changes in pesticide use patterns leading to increases in residues/risks? Specific criteria for threshold, who will monitor adherence over time (and on what basis)? Relationship between RfDs and limits of detection in the setting of thresholds. How to deal with non-detects in dietary exposure assessments? Can statistical methods be used to estimate distribution of residues in non-detects?	Unclear how risk trading issues will be resolved; these are central to cumulative risk assessment. Sliding scale approach rejected. LOD resolution -- Value of zero assigned to non-detects for portion of crop not treated; one-half the LOD for non-detects in treated portion. Final policy re use of statistical methods is unclear.
4	Dietary Residue Estimation	Proper uses of data from residue field trials and on percent acres treated. How to decompose PDP residue data? Dealing with outliers in consumption and residue databases, and assigning levels to non-detects. (Note overlap with Science Policy areas #2, #3.)	Decompose algorithm developed and refined. Full consumption and residue data bases will be used; crop uses leading to very high percents of total risk will be assessed for reasonableness.
5	Drinking Water Exposure	Proper uses of screening level models and monitoring data. Industry -- "Field pond" scenario overstates actual drinking water exposures.	"Farm field pond" scenario replaced with "drinking water reservoir" scenario. Run-off into reservoirs will be a function of percent of area cropped, sprayed. Need for better second-tier screening models and more monitoring data acknowledged.
6	Residential Exposure	How conservative are EPA residential exposure estimates? What percent of dermal exposure is transferred into the bloodstream? Residue dissipation rates in different environments; how to take them into account? Adequacy of methods to estimate hand-to-mouth exposure.	People are assumed to be exposed continuously for 2 to 8 hours. EPA assumes no protective clothing and no dissipation. Work is underway to sharpen accuracy of key equations and parameters in basic exposure models.
7	Aggregate Exposure	Whether and how to mix data of uneven quality from different routes of exposure? Establishing relevant time-periods over which to aggregate exposures. Should focus be on distributions across populations or individual exposures? How to account for regional patterns of drinking water exposure?	Focus on individuals and plausible scenarios in terms of time, place, and demographic characteristics. Drinking water and residential estimates will reflect conditions/monitoring data in regions. Methods not now available to assess/take into account non-pesticide exposures to related chemicals.
8	Cumulative Risk Assessment	How to determine Cumulative Assessment Groups (CAGs, see also area #9)? How specific and uniform must toxicological "Points of Departure" be? Whether to use relative potency factor or cumulative Margin of Exposure (MOE) approach? Building in water and residential exposures. Use of PDP composite residue data and samples with multiple residues. How to incorporate/integrate existing and new safety factors? How to refine estimates and enhance scientific sophistication while keeping to statutory time frames?	NOAELs for common effect will be used in estimating relative toxicity. FQPA safety factor will be applied to the CAG; how and on what basis remains unclear. EPA proposes to limit determination of unique pre- and/or postnatal toxicity to the toxic effect defining the CMG, not all toxic effects associated with the CMG. Suggestions to simplify the process in order to make it quicker and easier to complete CRAs were generally rejected. Agency still unclear on how it will address "risk trading."
9	Common Mechanism of Action	How precise must evidence of a "common mechanism" be -- same species, sex, strain of lab animal, endpoint? Should non-pesticide related exposures to chemicals in a CAG "count" in setting tolerances? For OPs, what measure of ChE inhibition to use -- plasma, blood, brain? NOAELs versus NOELs?	Exposure factors will not be considered in establishing common mechanism groups. For OPs and carbamates, weight of evidence approach will be used drawing on all evidence of ChE. Decision pending whether to merge the carbamates into the OP cumulative assessment group.