

Forest Service Pesticide Risk Assessments

Marin Municipal Water District Board Meeting, February 1, 2007



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Topics to Cover

- *What is a Pesticide Risk Assessment?*
- *How they are developed?*
- *Limitations*
- *How they can be used?*



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Glyphosate - Human Health and Ecological Risk Assessment Final Report

Prepared for:

USDA, Forest Service

Forest Health Protection

GSA Contract No. GS-10F-0082F
USDA Forest Service BPA: WO-01-3187-0150
USDA Purchase Order No.: 43-1387-2-0238
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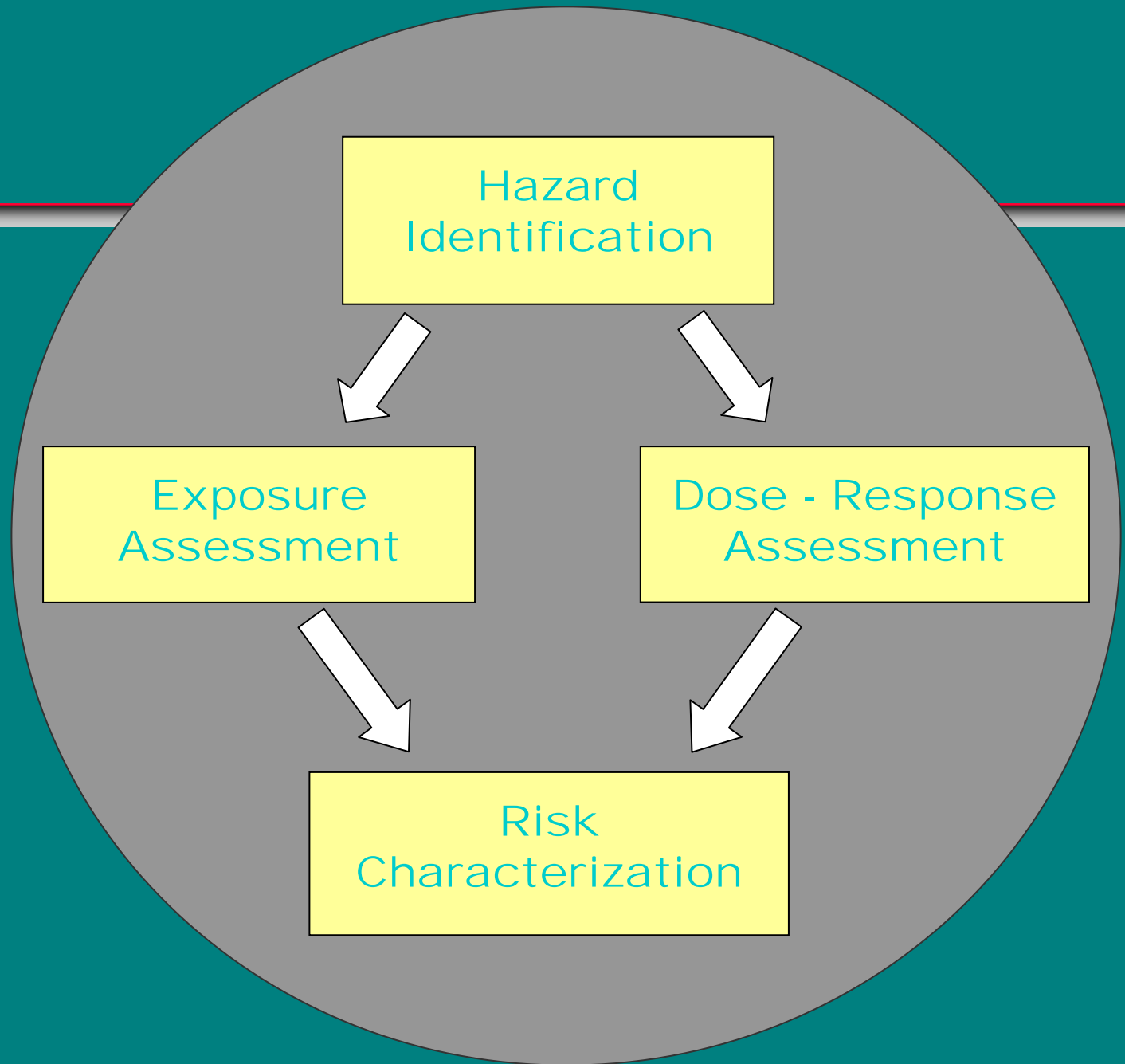
What Is It?

- *An analysis and decision-making tool*
- *Involves a transparent and rational process*
- *Answers the question: Is there a plausible risk to people, mammals, birds, fish, etc., from the proposed use of a pesticide*
- *Provides a basis for alternative comparison, risk management, and risk communication*

Components of Analyzing Risk

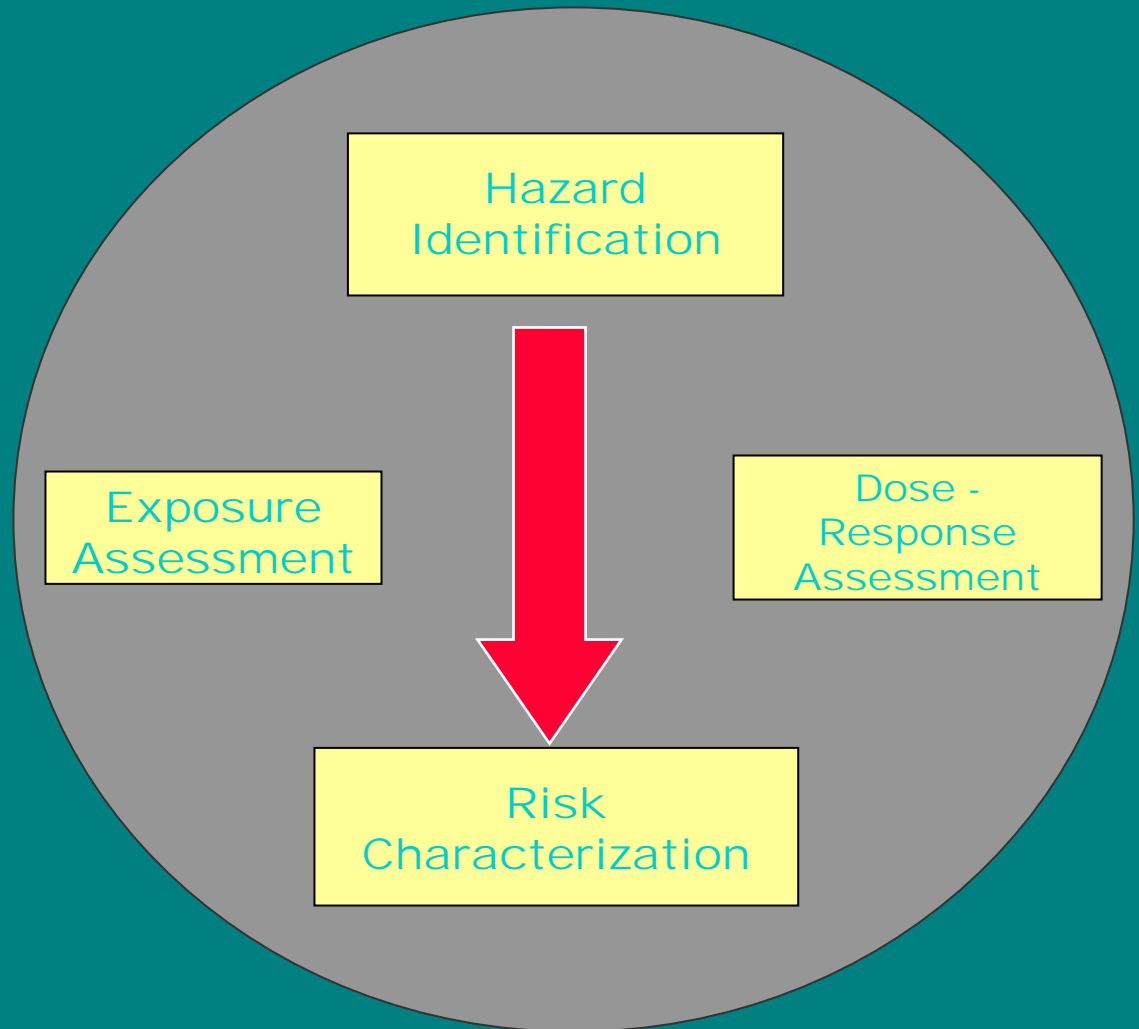
- *Hazard*
- *Exposure (Dose)*
- *Dose-Response Analysis*
- *Risk Characterization or Assessment*

Which leads to Risk Management (not a part of the risk assessment)



Junk Analysis – Commonly Seen

Something is hazardous, therefore it will cause harm.

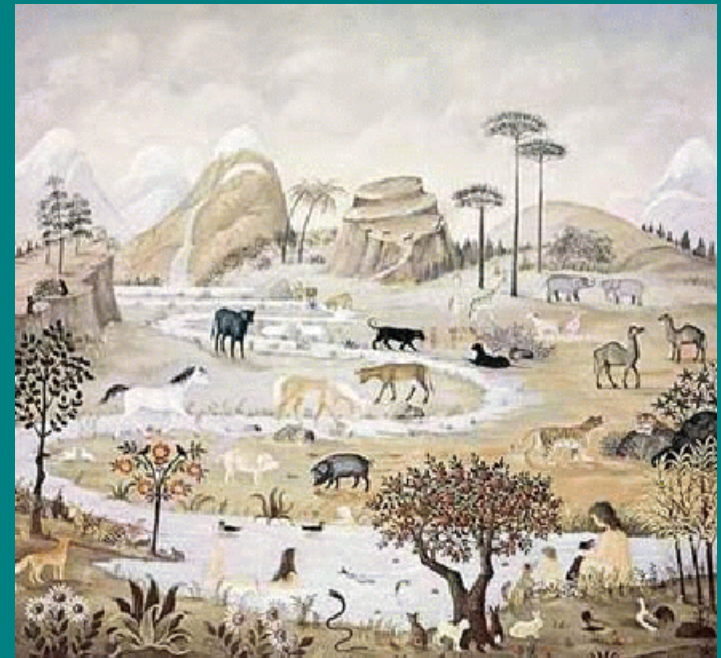


Hazard (Toxicity)

- *What can the pesticide do?*
- *Data on relatively few species are used to protect the many (we hope)*

Terrestrial – people, mammals, birds, invertebrates, plants, soil microorganisms

Aquatic - fish, invertebrates, plants, microorganisms, amphibians



Hazard (Toxicity) - Sources

- *Standard US EPA req'd toxicity tests*
 - *Mostly done by registrant*
 - *Limited range of species*
 - *Confidential Business Information (CBI)*
- *Peer-reviewed literature*
 - *Toxicity tests*
 - *Field studies*
 - *Efficacy tests*
- *Government studies/reports*

Exposure

- *Who gets what and how much?*
- *Forest Service developed typical and accidental exposure scenarios*
 - *Workers and the Public*
 - *Terrestrial and aquatic organisms*
 - *Direct, indirect contamination*
 - *Eating, drinking contaminated material*

Dose – Response Assessment

- *How much is too much?*
- *Different effects caused by different doses*
- *Human – Forest Service generally uses US EPA Reference Doses (RfD)*
- *Wildlife – Forest Service uses the lowest NOEL*

Risk Characterization

- *Is there any reason to worry?*
- *Forest Service uses Hazard Quotient (HQ)*
 - *Ratio of exposure to toxicity*
 - *If $HQ < 1$, the risk is acceptably low*

Limitations

- *Cannot prove safety*
- *Analysis is only as good as the data behind it*
 - *Inert ingredients*
 - *Mixtures*
 - *New data*
- *Surrogate species*
- *Listed or sensitive species*

How to Use the Risk Assessment

- *Spreadsheet-based worksheets can be easily customized for each project*
 - *Generate your own HQ numbers*
 - *Analyze alternative pesticides*
- *Risk Assessment leads to Risk Management*

Risk Management

So we have numbers that show an unacceptable risk, how do we resolve this?

- *Label Restrictions*
- *Timing of applications*
- *Non-treatment buffers*
- *Increase protective gear for workers*
- *Switch to other chemicals or methods*

Summary

- *Risk is a function of both hazard and exposure*
- *FS risk assessments are available for invasive weed applications of herbicides*
- *Evaluating risk will lead to informed risk management decisions*
- *Understanding data limitations is critical*

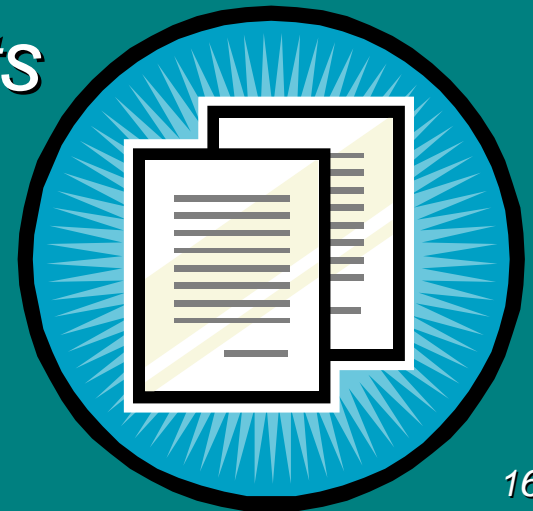
Forest Service Pesticide Risk Assessments

On the Internet:

- *www.fs.fed.us/foresthealth/pesticide/risk.shtml*

14 herbicides, 6 insecticides, 1 fungicide

Microsoft® Excel Worksheets



Questions?

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