CHAPTER 5

CONSULTATION, REFERENCES AND ACRONYMS/GLOSSARY

CONSULTATION

PUBLIC PARTICIPATION SUMMARY

Public Participation specific to the Custer National Forest Weed Management EIS Project is summarized in this chapter. The summary describes the public involvement, identifies persons and organizations contacted during preparation of the EIS, and specifies time frames for accomplishing goals in accordance with 40 CFR 1506.6

Public involvement in the EIS process includes the necessary steps to identify and address public concerns and needs. The public involvement process assists the agencies in: (1) broadening the information base for decision making; (2) informing the public about the Proposed Action and the potential long-term impacts that could result from the project; and (3) ensuring that public needs are understood by the agencies.

Public participation in the EIS process is required by NEPA at three specific points: the scoping period, review of Draft EIS, and receipt of the Record of Decision.

IMPLEMENTATION

Scoping is a process used to help identify specific areas of concern related to the proposal during the early portion of the detailed environmental analysis. A scoping document was sent on November 19, 2001 to 360 individuals, government agencies, tribal interests, news media, businesses, and organizations that have shown interest in similar projects on the CNF. This document provided information on the purpose and need for the project, described the proposed action, and asked for comments. People were asked to comment in 30 days, which period ended on December 31, 2001. The scoping document and mailing list are included in the project file.

A legal advertisement inviting comments was placed in The Billings Gazette (Billings, MT) and the Rapid City Journal (Rapid City, SD) in November 2001, summarizing the information provided in the letter. News releases were sent to local newspapers, as well. These media efforts helped to publicize the proposal and comment period.

The Notice of Intent (NOI) was published in the Federal Register on August 18, 2003. The NOI asked for public comment on the proposal from August 18 through September 15, 2003. In addition, the agency provided tribal and public notice, requesting comments via personal visits, scoping document, news releases, and CNF quarterly Notice of the schedule for NEPA projects.

In response to these efforts, nine letters, personal comments, or phone calls were received. Review of the public's responses showed that all respondents were in agreement that noxious and invasive weeds are of urgent concern on the CNF and surrounding areas and that steps should be taken quickly to reduce or eliminate their presence on the CNF. Of these, all but one supported the use of herbicides as part of the proposal, although some had questions or comments concerning the effects of the herbicides. The remaining one commenter either questioned the need for using herbicides or was concerned about the environmental effects of using herbicides. All comments were considered by the ID team and responsible official, and are documented in the project file. This project is also described on the Custer web page, http://www. http://www.fs.fed.us/r1/custer/projects/index.shtml .

A Notice of Availability for the Draft EIS was published in the Federal Register for the comment period. Also, a news release was provided at the beginning of the 45-day comment period on the Draft EIS to local news media. The Draft EIS was distributed to interested parties identified in the updated EIS mailing list.

CRITERIA AND METHODS BY WHICH PUBLIC INPUT IS EVALUATED

Comments received from the public are reviewed and evaluated by the Forest Service to determine if information provided in the comments would require a formal response or contain new data that may identify deficiencies in the EIS. Steps were then initiated to correct such deficiencies and to incorporate the information into the analysis.

CONSULTATION WITH OTHERS

The following organizations and agencies were consulted during preparation of the EIS:

U.S. Fish and Wildlife Service
U.S. Environmental Protection Agency
Montana Department of Fish Wildlife and Parks
Montana Department of Environmental Quality
Area Tribal Councils

LIST OF PREPARERS AND REVIEWERS

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Pesticide Related Web Links

The following are helpful pesticide related web links:

Agricultural Chemical Use Database [USDA, National Agricultural Statistics Service] - Provides interactive access to data from NASS on commodity acreages and active ingredient agricultural chemical use. Statistics are provided for selected states and crops only [Department of Agriculture (USDA)]

<u>Areawide Pest Management Research Unit</u> - Access descriptions of current research. [Department of Agriculture (USDA), Agriculture Research Service (ARS); Southern Plains Agricultural Research Center (SPARC)]

<u>Center for Veterinary Biologics, USDA Animal and Plant Health Inspection Service</u> - The Center regulates veterinary biologics [Department of Agriculture (USDA); Animal Plant Health Inspection Service]

<u>Compliance and Enforcement</u> - Information about environmental requirements. [Department of Agriculture (USDA)]

<u>EPA Aquatic Acute Toxicity Bioassay Technique</u> – Provides an EPA bioassay technique for testing acute toxicity in aquatic species sensitive to herbicides (including brook and rainbow trout). This technique is outlined in EPA toxicity testing manual entitled: "Methods for Measuring the Acute Toxicity of Effluents and Receiving Waters to Freshwater and Marine Organisms", EPA/600/4-90/027, September 1991.

<u>Household Products Database.</u> - Health & Safety Information on Household Products. [Department of Health and Human Services (HHS), National Inst. of Health (NIH), National Library of Medicine (NLM); Specialized Information Services]

<u>Leafy Spurge Herbicide Manual</u> - Provides information concerning the use of herbicides and their integration with other weed control technologies for the control of leafy spurge. [Department of Agriculture (USDA), Agriculture Research Service (ARS)]

<u>List of Approved Herbicide Formulations and Adjuvants</u> - Lists approved herbicide formulations for the Bureau of Land Management for the current fiscal year. Updated periodically. [Department of the Interior; Bureau of Land Management]

<u>Midcontinent Agricultural Chemical Research Program</u> - Homepage for the research on occurrence, movement, flux, fate, and effects of agricultural chemicals, such as pesticides, in 25 states by the Midcontinent Agricultural Chemical Research Project (MACRP) with links to study results and publications. [Department of the Interior, U.S. Geological Survey (USGS)]

<u>National Agriculture Compliance Assistance Center</u> - Is the first stop for information about environmental requirements that affect the agricultural community [Environmental Protection Agency (EPA)]

<u>National Pesticides Information Center (NPIC)</u> - A service that provides objective, science-based information about a wide variety of pesticide-related subjects [Environmental Protection Agency (EPA)]

Office of Pest Management Policy [USDA] - Develops tools for assessing new soil-water-crop management schemes to make effective use of limited resources where salinity and/or pesticides are a concern. Includes the models, their descriptions and contacts [Department of Agriculture (USDA)]

Office of Pesticide Programs (OPP) - EPA activity of evaluating and reviewing pesticides and their use [Environmental Protection Agency (EPA)]

<u>Pest Management Regional Centers [USDA Cooperative State Research, Education, and Extension]</u> - Locate information on pest management by tactic, state or commodity in minimized pesticide use, enhanced environmental stewardship, and sustainable systems [Department of Agriculture (USDA); Cooperative State Research Education and Extension (CSREES)]

<u>Pest Management [USDA, Natural Resources Conservation Service]</u> - Policies, software, data, risk analysis, training modules and contacts for pest management [Department of Agriculture (USDA), Natural Resources Conservation Service (NRCS)]

<u>Pesticide Category of the Household Products Database</u> - Browse the Pesticide Category of the Household Products Database [Department of Health and Human Services (HHS), National Inst. of Health (NIH), National Library of Medicine (NLM)]

<u>Pesticide Data Program (PDP)</u> - Data on pesticide residues in food [Department of Agriculture (USDA); Agricultural Marketing Service (AMS)]

<u>Pesticide Management and Coordination</u> - Provides information on Forest Service Policy regarding the use of pesticides on National Forest System lands and on the proper use of pesticides. [Department of Agriculture (USDA), Forest Service]

<u>Pesticide Product Information System (PPIS)</u> - Data concerning all pesticide products registered in the United States [Environmental Protection Agency (EPA); Office of Pesticide Programs (OPP)]

<u>Pesticide Product Label System (PPLS)</u> - A collection of images of pesticide labels which have been approved by EPA [Environmental Protection Agency (EPA)]

<u>Pesticide Properties Database (USDA, ARS)</u> - Database of pesticides with potential to move into ground and surface waters under a range of weather and soil conditions [Department of Agriculture (USDA), Agriculture Research Service (ARS); Alternate Crops & Systems Laboratory]

Pesticide Safety Education Program [USDA, Cooperative State Research, Education and Extension] - A directory of web sites and contacts for pesticide safety, pesticide applicator training and information on preventing exposure to pesticides [Department of Agriculture (USDA); Cooperative State Research Education and Extension (CSREES)]

<u>Pesticides, Metals, Chemicals. Contaminants & Natural Toxins page</u> - Explains the Food and Drug Administration's policies regarding these impurities in regulated products [Department of Health and Human Services (HHS), Food and Drug Administration (FDA); Center for Food Safety and Applied Nutrition.]

<u>Pesticides, Recommended EPA Web pages</u> - Links to EPA web site pages related to pesticide issues [Environmental Protection Agency (EPA)]

<u>Plant Sciences Institute (PSI)</u> - Discovers and develops biological, chemical, and physical processes and principles (including bioregulation) that will improve pest management systems, crop production efficiency, conservation of natural resources, environmental quality, and support of re [Department of Agriculture (USDA), Agriculture Research Service (ARS); Beltsville Agricultural Research Center (BARC)]

<u>Production Input Industries - Key Topic (ERS)</u> - Covers information on pesticides, fertilizers, machinery, energy, seed, and biotechnology products, all of which are agricultural production inputs. [Department of Agriculture (USDA); Economic Research Service]

<u>Salinas Agricultural Research Station - USDA-ARS</u> - Determine the basic biology of virus diseases of sugarbeets and vegetables in relationship to etiology, epidemiology, vector transmission and pathogenesis. [Department of Agriculture (USDA)]

<u>Soil Physics, Pesticides, and Pathogens [USDA, ARS]</u> - Develops tools for assessing new soil-water-crop management schemes to make effective use of limited resources where salinity and/or pesticides are a concern. Includes the models, their descriptions and contacts [Department of Agriculture (USDA), Agriculture Research Service (ARS)]

<u>Soybean Rust Information Site</u> - USDA's Web site supporting the goals of a coordinated response framework and providing stakeholders with timely and accurate information for managing soybean rust in 2005. [Department of Agriculture (USDA)]

<u>USDA</u> - <u>Economic Research Service</u> - <u>Briefing Room, Agriculture Chemicals and Production Technology</u> - Synthesizes ERS research on the economic and environmental factors involved in the adoption of management practices and technologies as farmers move to more environmentally friendly practices [Department of Agriculture (USDA)]

<u>USDA Whitefly Knowledgebase</u> - Contains numerous links to whitefly related sites, keys for identifying whiteflies, an extensive literature reference section, and other topics of related interests [Department of Agriculture (USDA)]

Worker Protection from Pesticides [USDA, Office of the Chief Economist.] - Links to worker protection standards, the WPS forum, and EXTension TOXicology NETwork's pesticide information written for the non-expert [Department of Agriculture (USDA); Office of the Chief Economist.]

http://www.science.gov/browse/w_105H.htm

ACRONYMS

CNF Custer National Forest

DEIS Draft environmental impact statement

EA Environmental assessment
EIS Environmental impact statement
EPA Environmental Protection Agency
FQPA Food Quality Protection Act of 1996
FEIS Final environmental impact statement

FSH Forest Service Handbook FSM Forest Service Manual

NEPA National Environmental Policy Act

NFS National Forest System
NOI Notice of Intent
OHV Off-highway vehicle
ROD Record of Decision
USC United States Code

USDA United States Department of Agriculture

USFS United States Forest Service
USFWS United States Fish Wildlife Service
USGA United States Geologic Survey

ABBREVIATIONS AND SYMBOLS

a.e. acid equivalents
a.i. active ingredient
AEL adverse-effect level
BCF bioconcentration factor

cm centimeter

DF dry flowable

d.f. degrees of freedom

EC25 concentration causing 25% inhibition of a process
 EC50 concentration causing 50% inhibition of a process
 g gram, equivalent to about 0.03 ounce (28 g = 1 ounce)

HQ hazard quotient
ka absorption coefficient
ke elimination coefficient

Kgkilogram, equivalent to 2.2 poundsKo/corganic carbon partition coefficientKo/woctanol-water partition coefficientKpskin permeability coefficient

L liter lb pound

LC50 lethal concentration, 50% kill LD50 lethal dose for 50% of population LOAEL lowest-observed-adverse-effect level

m meter mg milligram

mg/kg/day milligrams of agent per kilogram of body weight per day

Mg/kg milligrams per kilogram

mg/L milligrams per liter; equivalent to ppm

mM millimole

MW molecular weight MOS margin of safety

MSDS material safety data sheet
NOAEL no-observed-adverse-effect level
NOEL no-observed-effect level

ppb parts per billion

ppm part(s) per million; equivalent to mg/L

RfD reference dose UF uncertainty factor

GLOSSARY OF TERMS

Acid Equivalent (a.e.): The theoretical yield of the original parent acid from the active ingredient content of a formulation. Some acid-based pesticide molecules are sometimes altered to form either an ester or a salt. This helps a pesticide become more water soluble or impart other beneficial characteristics to a pesticide other than its pesticidal effects. So, some salt and ester formulations are expressed as both active ingredient (with the salt or ester component) and as acid equivalent (the yield of the original acid molecule). For example, the active ingredient for certain glyphosate formulations is 4 pounds per gallon while the acid equivalent for the same formulation is 3 pounds per gallon.

Active ingredient (a.i.): The effective part of a pesticide formulation that actually destroys the target pest or performs the desired functions, or the actual amount of a technical material present in the formulation.

Absorption: The process by which the agent is able to pass through the body membranes and enter the bloodstream. The main routes by which toxic agents are absorbed are the gastrointestinal tract, lungs, and skin.

Active ingredient: The main ingredient that produces the desired effect.

Acute exposure: A single exposure or multiple exposures occurring within a short time (24 hours or less).

Additive effect: A situation in which the combined effects of two herbicides is equal to the sum of the effect of each herbicide given alone. The effect most commonly observed when two herbicides are given together is an additive effect.

Adjuvant: Material added to the pesticide mixture to help the active ingredient do a better job of control. Examples of an adjuvant include: wetting agent, spreader, adhesive, emulsifying agent, and bark penetrant.

Adaptive Management: A concept of allowing decisions, which are focused on desired outcomes, to be made with the best information available and to adjust operations to achieve desired conditions. See Chapter 2 of this EIS for description of Adaptive Management as it applies to noxious and invasive weed management in the Custer National Forest.

Adsorption: The tendency of one herbicide to adhere to another material.

Affected Environment: The physical, biological, social, and economic environment where human activity is proposed.

Allelopathic Substances: Chemical compounds produced by plants (and microorganisms) that affect the interactions between different plants (and microorganisms).

Annual (plant): A plant species living for only one year or season.

Assay: A kind of test (noun); to test (verb).

Biennial: A plant that completes its life cycle within a two-year period. Germinates in the spring, overwinters, flowers the following spring or summer and dies back the following fall.

Bioaccumulation: The retention and concentration of a substance by an organism.

Bioconcentration: The net accumulation of a substance by an aquatic organism as a result of uptake directly from aqueous solution. Bioaccumulation = the net accumulation of a substance by an organism as a result of uptake directly from all environmental sources and from all routes of exposure (primarily from food or water that is ingested).

Biological Control (Biocontrol): The dispersal or release of biocontrol agents on a noxious weed infestation (see definition of infested acre), with the intent of establishing a population of a biological control agents. An agent can be an insect, fungus, bacterium, or any other life form that preys on the weed of concern. The release of agents can occur at a single location or scattered over a site. The release can be a few individuals, a container of many individuals, or several containers with thousands of individual agents. Releases at different locations, with the intent of establishing separate populations (at least 1/4 mile apart), constitute separate releases. Release of two species of biological control agents, at the same location, in the same year, is a single release.

Biodegradation: The series of processes by which living systems, particularly microorganisms, degrade chemical compounds, and the breakdown products may be either more or less toxic than the parent compound.

Biological diversity: The variety of life and its processes, including all life forms from one-celled organisms to complex organisms such as insects, plants, birds, reptiles, fish, other animals and the processes, pathways and cycles that link such organisms into natural communities.

Bio-magnification: When a compound may become progressively more concentrated in the body of certain animals as it moves up the food chain.

Carcinogen: A substance that causes or induces cancer.

Chronic exposure: Long-term exposure studies often used to determine the carcinogenic potential of herbicides. These studies are usually performed in rats, mice, or dogs and extend over the average lifetime of the species (for a rat, exposure is 2 years). These effects are considered to be permanent or irreversible.

Chronic toxicity: The capacity of a substance to cause adverse human health effects as a result of repeated exposure to a chemical for greater than half the life expectancy of the test subjects.

Contain Strategy: Weeds are geographically contained and are not increasing beyond the perimeter of the infestation. The objective is to control or eradicate along the perimeter of infestations to hold the infestation from spreading. Treatment within established infestations may be limited.

Contaminants: For herbicides, contaminants are impurities present in a commercial grade herbicide. For biological agents, contaminants are other agents that may be present in a commercial product.

Control Strategy: Seed production is prevented throughout the target patch and the area coverage of the weed is decreased over time. Prevent the weed species from dominating the vegetation of the area, but accept a low level of weed infestation.

Cumulative effects: Changes as a result of more than one action that may enhance or degrade a specific site.

Cumulative exposures: The summation of exposures of an organism to a chemical over a period of time.

Cytochrome P-450: Cytochrome P450 proteins in humans are drug metabolizing enzymes and enzymes that are used to make cholesterol, steroids and other important lipids.

Degradation: Physical or biological breakdown of a complex compound into simpler compounds.

Dermal exposure: Contact between a chemical and the skin.

Draft Environmental Impact Statement: The statement of environmental effects required for major Federal actions under Section 102 of the National Environmental Policy Act (NEPA), and released to the public and other agencies for comment and review.

Drift: That portion of a sprayed herbicide that is moved by wind off a target site.

Eradicate Strategy: The noxious weed species is eliminated including viable seeds and/or vegetative propagates.

Exotic plant: A non-native plant.

Forbs: A group of herbaceous (non-woody) plants, other than grasses, generally including wildflowers and many other plants, including those commonly referred to as weeds.

Forest Plans: The Land and Resource Management Plans for the Dakota Prairie Grasslands.

Formulation: The form in which a pesticide is packaged or prepared for use. A chemical mixture that includes a certain percentage of active ingredient (technical chemical) with an inert carrier.

Gross Area: An area of land occupied by one or more noxious weed species. The area is defined by drawing a line around the general perimeter of the infestation, not the canopy cover of the plants. The gross area may contain significant parcels of land that are not occupied by weeds.

Hazard analysis: Involves gathering and evaluating data on the types of injury or disease that may be produced by a substance and on the conditions of exposure under which injury or disease occurred.

Hazard Quotient: A Hazard Quotient (HQ) is the ratio between the estimated dose (the amount of herbicide received from a particular exposure scenario) and the Reference Dose (RfD).

Herbicide: A chemical that regulates the growth of or kills specific weeds or undesirable plants.

Hypersensitivity: A state of extreme sensitivity to an action of a chemical; a state of altered reactivity in which the body reacts with an exaggerated immune response to a foreign substance.

In vivo: Occurring in the living organism.

In vitro: Isolated from the living organism and artificially maintained, as in a test tube.

Inerts: Adjuvants or additives in commercial formulations that are not readily active with the other components of the mixture.

Inert ingredients: All ingredients in a formulated pesticide product that are not classified as active ingredients.

Infested Area (Occupied Area, Net Area): A contiguous area of land occupied by one or more weed species. The infested area is defined by drawing a line around the actual perimeter of area occupied by the canopy of the weed plants.

Inhalation: The movement of a chemical from the breathing zone, through lung tissues, and into the blood system.

Intake: Amount of material inhaled, absorbed through the skin, or ingested during a specified period of time.

Integrated Pest Management (IPM): The use of different techniques, in combination to control pests, with an emphasis on methods that are least injurious to the environment and most specific to the particular pest. For example, pest-resistant plant varieties, regular monitoring for pests, pesticides, natural predators of the pest, and good stand management practices may be used singly or in combination to control or prevent particular pests.

Invasive plant: A nonnative species that is likely to cause or has the potential to cause economic or environmental harm to the ecosystem under consideration or harm to human health.

Lethal Dose50 (LD50): A measure of acute toxicity. The dose of a herbicide calculated to cause death in 50% of a defined experimental animal population over a specified observation period. The observation period is typically 14 days.

Lowest-Observed-Adverse-Effect Level (LOAEL): The lowest dose of a herbicide in a study, or group of studies, that produces statistically or biologically significant increases in frequency or severity of adverse effects between the exposed population and its appropriate control.

Mutagenic: Adverse effects on genes that may result from exposure to a herbicide or biological agent.

Native vegetation: With respect to a particular ecosystem, a species that, other than as a result of an introduction, historically occurred or currently occurs in that ecosystem.

Natural community: An assemblage of organisms indigenous to an area that is characterized by distinct combinations of species occupying common ecological zones and interacting with one another.

No-observed-adverse-effect level: (NOAEL): An exposure level at which there are no statistically or biologically significant increases in the frequency or severity of adverse effects between the exposed population and its appropriate control; some effects may be produced at this level, but they are not considered as adverse, or as precursors to adverse effects. In an experiment with several NOAELs, the regulatory focus is primarily on the highest one, leading to the common usage of the term NOAEL as the highest exposure without adverse effects.

No-observed-effect concentration (NOEC): Synonymous with NOEL.

No Observed Effect Level (NOEL): In dose-response experiments, it is the exposure level which causes no statistically significant increase in frequency or severity of any effect between the exposed population and its appropriate controls.

Non-native vegetation: Any species that is not native to the ecosystem in question

Non-target: Any plant, animal, or organism that a method of application is not aimed at, but may accidentally be injured by the application.

No-Observed-Adverse-Effect Level (NOAEL): The dose of a herbicide at which no statistically or biologically significant increases in frequency or severity of adverse effects were observed between the exposed population and its appropriate control. Effects may be produced at this dose, but they are not considered to be adverse.

Noxious weeds: An invasive non-native plant specified by law as being especially undesirable, troublesome, and difficult to control.

Perennial: A plant species that has a lifespan of more than 2 years.

Persistence: Resistance to degradation due to low volatility and chemical stability. A persistent substance is expected to remain in the environment for a long time.

Pesticide: Any substance used to control, prevent, destroy, repel, or mitigate insects, rodents, fungi, weeds, or other forms of plant or animal life that are considered to be pests.

Photodegradation: The chemical transformation of a compound into smaller compounds caused by the absorption of ultraviolet, visible, or infrared radiation (light). In many cases photodegradation is an oxidation process. Many compounds, when exposed to sunlight, degrade to smaller compounds.

Plant community: An association of plants or various species found growing together in different areas with similar site characteristics.

Potency: The measure of the relative strength of a chemical.

Protection measures or practices: The identification of specific practices and methods that will reduce or eliminate adverse effects related to implementation of an alternative.

Reference dose: Oral dose (mg/kg/day) not likely to be associated with adverse effects over a lifetime of exposure, in the general population, including sensitive subgroups.

Registered herbicide: All pesticides sold or distributed in the United States must be registered by the U.S. Environmental Protection Agency, based on scientific studies, showing that they can be used without posing unreasonable risks to people or the environment.

Risk: In risk assessment, the probability that an adverse effect (injury, disease, or death) will occur under specific conditions of exposure to a risk agent.

Reproductive effects: Adverse effects on the reproductive system that may result from exposure to a herbicide or biological agent. The toxicity of the agents may be directed to the reproductive organs or the related endocrine system. The manifestations of these effects may be noted as alterations in sexual behavior, fertility, pregnancy outcomes, or modifications in other functions dependent on the integrity of this system.

RfD: Reference Dose, a numerical estimate of a daily exposure (mg/kg/day) to the human population, including sensitive subgroups such as children, that is not likely to cause harmful effects during a lifetime. RfDs are generally used for health effects that are thought to have a threshold or minimum dose for producing effects. The U.S. EPA derives these values.

Route of exposure: The way in which a herbicide or biological agent enters the body. Most typical routes include oral (eating or drinking), dermal (contact of the agent with the skin), and inhalation.

Selected herbicide: A chemical that is more toxic to some plant species than to others.

Surfactant: A specific type of additive to a pesticide formulation that is intended to reduce the surface tension of the carrier, to allow for greater efficacy of the pesticide.

Surrogate: A substitute; lab animals are substituted for humans or other wildlife in toxicity testing.

Synergistic effect: A situation is which the combined effects of two herbicides is much greater than the sum of the effect of each agent given alone.

Teratogenic: Causing structural defects that affect the development of an organism; causing birth defects.

Treated Area: An infested area (see definition of infested area) where weeds have been treated or retreated by an acceptable method (chemical, biological, mechanical, cultural, manual) for the specific objective of controlling their spread and/or reducing their density (generally reported in increments of not less than 0.1 acre for chemical and mechanical treatment).

Threshold level: A dose or exposure below which there is no apparent or measurable adverse effect.

Toxicity: The inherent ability of an agent to affect living organisms adversely.