S24MT18P00

EFFICACY AND SUSTAINABILITY ASSESSMENT OF PESTICIDES (INCULDING HERBICIDES) IN CANADA

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In accordance with the Pest Control Products Act, pesticides must be demonstrated to be safe, effective, and to have a benefit or value prior to acceptance for registration for sale and use in Canada. Pest control products that are subject to registration include herbicides, PGR's, adjuvants, insecticides, fungicides and anti-microbials. PMRA conducts a review of scientific data submitted in support of the proposed use claims and includes an assessment of the efficacy, crop tolerance, impact on rotational crops, resistance management strategy, and contribution to *sustainability. Value assessment* includes a determination of the *lowest effective rate* (LER) in terms of level, duration and consistency of control across a broad range of conditions. This avoids excessive dosages that may increase pesticide residues in food and result in increased exposure to applicators, bystanders, and the environment. LER provides a baseline for effective risk assessment and risk management decisions. LER also contributes to sustainable pest management objectives and mitigation of resistance development. A key initiative of PMRA regarding resistance management is the implementation of *resistance management labelling* which requires the addition of Mode of Action Groups and resistance management statements on the labels of commercial pesticides for agricultural uses. PMRA encourages submission of applications for reduced risk products under the *reduced risk strategy*. Recently *Chondrostereum purpureum* was registered for the inhibition of sprouting and regrowth of hardwood species in rights-of-way and forestry sites. *Harmonizing* efficacy data requirements with international regulatory organizations, such as EPPO, remains an ongoing objective

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EARLY DETECTION AND IMPROVING CAPACITY TO SUPPORT EMERGENCY RESPONSE TO INVASIVE PLANTS

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Some exotic plant pests leave immediate evidence of their presence. Other types of foreign pests, as well as seeds or other propagules, however, may go undetected for months or even years in the absence of proper surveillance. Without early detection, these pests can become established and permanently damage agriculture and natural resources. The member Agencies of FICMNEW (Federal Interagency Committee for the Management of Noxious and Exotic Weeds) have been engaged in development of an Early Detection and Rapid Response (EDRR) plan to expand the national capacity to detect and respond to invasive plant infestations. APHIS is planning or expanding numerous programs to improve rapid response. These include the APHIS/WSSA weed Listing project, an APHIS Incident Command System, Department of Homeland Security liaison mechanisms, and a new Offshore detection program. Cooperative Agricultural Pest Survey (CAPS) will be a part of this expanded system. Managed by USDA's Animal and Plant Health Inspection Service's Plant Protection and Quarantine (PPQ) program, CAPS reports finds of damaging foreign organisms—exotic plant pests, diseases, and weeds—throughout the United States into the National Agricultural Pest Information System (NAPIS). This database, makes the survey information easily accessible to the public, as well as supporting decision-making and program design. Early response requires identification and verification of detected species, which involves APHIS national identifiers, and will include new CSREES regional identification centers. These programs will be integrated with other new rapid response programs from other State and Federal Agencies.

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FEDERAL NOXIOUS WEEDS: POTENTIAL PATHWAYS INTO THE UNITED STATES

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In a typical year, agricultural inspectors and botany identifiers within the Animal and Plant Health Inspection Service (APHIS) and the Department of Homeland Security intercept and identify about 3,500 Federal noxious weeds. In the five years prior to April 2003, the most frequently intercepted Federal noxious weeds were onionweed (Asphodelus fistulosus), itchgrass (Rottboellia cochinchinensis), red rice (Oryza spp.), swampmorningglory (Ipomoea aquatica), giant hogweed (Heracleum mantegazzianum), turkeyberry (Solanum torvum), and dodder (Cuscuta spp.). Agricultural inspectors at the border find these Federal noxious weeds and others in various pathways, including passenger baggage, bird seed, human foodstuffs, plant and seed shipments for consumption and propagation, herbal medicine and dried flowers. Itchgrass seeds often hitchhike on railroad cars from Mexico; animated oats (Avena sterilis) hitchhike with stones, tiles, and sheepskins from Europe and the Middle East. Cargo and conveyances containing Federal noxious weeds are returned to the country of origin, treated, or destroyed. Inspectors seize and destroy regulated plant material in passenger baggage.

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SEED PRODUCTION POTENTIAL OF PREDOMINANT WEED SPECIES IN LOWLAND AND IRRIGATED UPLAND ECOSYSTEMS

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Seed production potential of predominant weed populations needs to be taken into account when estimating the long-term impact of any crop management practices. Prediction of weed seed production under field conditions is essential to the successful adoption of crop management practices, which will give the idea about subsequent weed infestations ensuing from a well-stocked seed bank. Twenty-five plants in each weed species were selected randomly from the cropped fields of low land and irrigated upland condition and the number of seeds produced per plant and weed seed rain were calculated based on the no. of fruits and seeds per fruit and number of plants per square meter. In low land ecosystem, between the two predominant grassy weeds, higher seed production potential was observed with *Echinochloa clona* (3,530 seeds / plant). But, *Echinochloa crus-galli* contributed for higher weed seed rain of 92,254 seeds / m^2. Among the two predominant broad leaved weeds, *Ammania baccifera* had higher seed production potential as well as weed seed rain recording 2,670 seeds / plant and 33,110 seeds/m^2. In upland irrigated condition, *Trianthema portulacastrum* was the dominant weed closely followed by *Parthenium hysterophorus*. However the seed production potential was higher with *Parthenium hysterophorus* (10,130 seeds / plant). The higher seed production potential of *Parthenium hysterophorus* contributed for the highest weed seed rain of 2, 43,126 seeds / m^2.