

Important Tropical Weeds



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PREFACE

Weeds are the important pests of different crops. Its sustainable control and management need proper identification. The students of agriculture, agro-based industry or agro-technology must know the identity and impacts of the weeds in order to plan proper weed management strategy. This book has been written with the basic information about the weed i.e. its common English name (EN), scientific name (Sc. N.), local Malay name (LMN), family and its important impacts on crop, forest and the environment. However, some of the weeds could not be identified with local Malay names due to non-availability of information. Identification of the weeds has been done from my personal experience, using appropriate books and internet; and by expert taxonomist. Many weeds have been identified by Mr. Peter Boyce, Taxonomist and Visiting Lecturer of School of Biological Sciences, Universiti Sains Malaysia, Penang. Colourful photographs of all the weeds are presented for easy identification. The book will be useful for undergraduate and post-graduate students of agriculture, agro-based industry and agro-technology, all scientists, academicians, extension workers, policy makers etc. who are interested in weeds and weed management.

Author
20 August 2013

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Introduction

Weed means “a plant out of place” or “a plant that interferes with the management objectives of a given area of land at a given point in time”. A rice plant in a wheat field or a wheat plant in a rice field is weed. A plant of good pasture crop growing in a well-managed lawn is also a weed. Similarly, a plant of medicinal value growing unwantedly on the roof of a building is a weed. Most of the weeds are pollutants to our environment. They appear attractive, desirable or harmless but later it can be toxic, painful or injurious to humans and may create problems in water quality. It can multiply exponentially and can generate tons of biomass in a matter of months. It spreads naturally through water, wind or soil, may also spread by wildlife and livestock (Karim and Kabir 1995).

Some of the weeds are terrestrial, some are aquatic in nature and some are epiphytic growing on the trunk of big trees. Their roots enter the barks of the trees and make them to crack. Some weeds are parasitic and they make direct contact with the cell sap of the host plant producing haustoria and finally suck the plant metabolites from the host. Many weeds are invasive and alien species in particular country, others are native but noxious. Many of them are problems in human and animal health, and affecting the biodiversity. Most of the weeds are perennial some are annual posing different degrees of competition with crop plants. A good number of weeds are grasses and sedges with narrow leaves but others are with broad leaves.

To identify different weeds it is important to study their shape and type of leaves, stem, flowers and fruits. Some leaves are covered with minute hairs, others are smooth. Stem may be smooth or ribbed. Flowers are of different colours and of different shapes. All these information need to keep in mind during identifying the weeds.

Important weeds of field crops, fruit gardens, vegetable fields, aquatic habitats or wasteland are represented in this book with short description.

CHAPTER I

FAMILY: POACEAE

Poaceae

Poaceae or Gramineae is called grass family of monocotyledonous flowering plants. Plant communities dominated by grasses account for about 24 percent of the Earth's vegetation. Many plants are erect but some with weak stem and some are with floating device. Most of grasses are smaller in size but some are big (e.g. Reeds). Many grasses are aquatic or semi-aquatic and others are terrestrial.

The plants of Poaceae have hollow stems called culms plugged at intervals by solid leaf-bearing nodes. The leaves are alternate and distichous (in one plane) and have parallel veins. Each leaf is differentiated into a lower sheath hugging the stem and a blade with entire (i.e. smooth) margins and strap-shaped. The leaf blades of many grasses are hardened with silica is phytoliths, which discourage grazing animals. Some species such as sword grass, are sharp enough to cut human skin. A membranous appendage or fringe of hairs called the ligule lies at the junction between sheath and blade, preventing water or insects from penetrating into the sheath.

The basic unit of the inflorescence is a spikelet consisting of a basal pair of minute sterile bracts called glumes and one or more distichously arranged distal florets called the rachilla. Flowers are arranged in spikelets, each spikelet having one or more florets. A floret consists of the flower surrounded by two bracts, one external- the lemma and one internal- the palea. The flowers are usually hermaphroditic - maize being an exception and anemophilous or wind-pollinated. The fruit is a leafy shoot other than the first shoot produced from the seed (Internet 1, Wikipedia 1).



Sc. N: *Eleusine indica*

EN: Indian goosegrass

LMN: Rumpul belulang

Habitat and Crop Association: It grows in dry land conditions or in saturated soil. It is an important weed of cultivated crops, lawns, and golf courses. It is perennial in nature.



Sc. N: *Panicum repens*

EN: Torpedo grass

LMN: Kerunong padi

Habitat and Crop Association: Grows in dry and wet land of rice. Dense mats or stands of the grass cause hypoxia in the water. It is perennial in nature.



Sc. N: *Echinochloa crusgalli*

EN: Barnyard grass

LMN: Rumpul padi burung, Rumpul kekusa besar

Habitat and Crop Association: Considered one of the world's worst weeds, it reduces crop yields and causes forage crops to fail by removing up to 80% of the available soil nitrogen.



Sc. N: *Echinochloa colonum*

EN: Jungle rice

LMN: Rumpul bebek, Padi burung

Habitat and Crop Association: It grows in drains, low-lying grasslands, and farmlands, in both dry and marshy places. It is one of the most important weeds of upland rice.