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Chapter
10

Polyethylene Film Mulches for Protected Cropping

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Abstract

Innovative cultivation practices are desired to transform of cropping system which will result in stretching agro-input resources manifolds to increase agricultural productivity both in quality and quantity. Plastic mulch is one of the most useful indirect agricultural inputs which modify the microclimate of crops. The use of polyethylene mulch in agriculture has gained a steep increase in the last couple of decades all over the world. This increase of use may be because polyethylene mulch increases soil temperature, crop yield, soil nutrient use efficiency, and chemical composition of fruits and vegetables and reduces weed growth, soil moisture loss, and pests and diseases. Many scientists and researchers have been conducted studies to understand the effects of plastic mulch on agriculture and horticultural crops in different parts of the World. Therefore, an attempted has been made in this chapter to compile all the scattered information related to polyethylene mulch in single place to assist researchers and extension personnel working in this area.

Keywords: Plastic mulch, polyethylene, biodegradable mulch, soil temperature

1. Introduction

Plastic materials are human made long-chain polymeric molecules (Scott 1999). Plastic was invented in its solid form in the year 1935 by British chemists Fawcett and Gibson, and first manufactured in a sheet form in the year 1938 (Lamont 1996). The excellent qualities of plastic such as processibility, chemical resistance, durability, flexibility and odor free attracts consumer to use extensively. Polyethylene films (PF) produced by the polymerization of ethylene under very high pressure. The