

Author: Keyword:

Search

ADVANCED

Add to
Favorite
Articles / Citation
AlertsAdd to
Favorite
PublicationsRegister
AlertsMy J-STAGE
HELP[TOP](#) > [Available Issues](#) > [Table of Contents](#) > [Abstract](#)

ONLINE ISSN : 1881-4212

PRINT ISSN : 0915-499X

Bulletin of the Institute of Tropical Agriculture, Kyushu University

Vol. 30 (2007) , No. 1 pp.83-92

[\[PDF \(452K\)\]](#) [\[References\]](#)

Use of tree leaf as mulch comparing with conventional mulch for irrigation water saving in tomato production

Md. Abiar Rahman¹⁾²⁾, Hisashi Yahata¹⁾, Tofayel Ahamed²⁾ and Makoto Komoda³⁾

1) Institute of Tropical Agriculture, Kyushu University

2) Bangabandhu Sheikh Mujibur Rahman Agricultural University

3) Japan Wildlife Research Center

Abstract: Tomato is cultivated during the dry winter season in Bangladesh with scarce rainfall. Poor farmers can not afford enough money to apply irrigation as well as other costly inputs. Conventionally, rice straw is used as mulch to conserve soil water during the crop cultivation of dry season. The availability of rice straw is not sufficient to meet the demand because it is also used as fuel, house making and cattle feed. Nowadays, agroforestry is practiced in many parts of the country and there is an opportunity to use tree leaves as mulch. The study was aimed to examine the effectiveness of tree leaf (*Senna siamea*) mulch comparing with the conventional mulch (rice straw) and no mulch for saving irrigation water in tomato cultivation. Irrigation water (IW) (40, 20 and 10 mm) were applied when cumulative pan evaporation (CPE) exceeded 40 mm, thus the irrigation levels were IW/CPE 1.0, 0.5 and 0.25, respectively. *Senna* leaf mulch conserved more soil water than straw mulch and no mulch. Number of fruits per plant, fruit length and fruit yield of tomato were the highest in *Senna* leaf mulch, which did not vary significantly with rice straw mulch but varied significantly with no mulch. Tomato yield obtained from *Senna* leaf mulch was 4.6 and 13.7% higher than straw mulch and no mulch, respectively. All these parameters increased with irrigation level. Ascorbic acid content of fruit was relatively high in no mulch with lower irrigation level, while β -carotene was increased with irrigation level irrespective of mulches. Weed dry weight was significantly higher in no mulch plot compared to straw and *Senna* leaf mulch plots. Results indicate that *Senna siamea* leaf can be used as effective mulch and 50% irrigation water can be saved without significant yield loss for tomato cultivation during the dry season.

Keywords: *Senna siamea* leaf, rice straw, cumulative pan evaporation (CPE), tomato yield, fruit quality, weed infestation

To cite this article:

Md. Abiar Rahman, Hisashi Yahata, Tofayel Ahamed and Makoto Komoda 2007 Use of tree leaf as mulch comparing with conventional mulch for irrigation water saving in tomato production . *Bull. Inst. Trop. Agr., Kyushu Univ.* **30**: 83-92 .

JOI JST.JSTAGE/bit/30.83

Copyright (c) 2008 Institute of Tropical Agriculture, Kyushu University



[Japan Science and Technology Information Aggregator, Electronic](#)

