

# The Effects of Transplanting Date on Management of Tobacco Insect Pests. Min review

Daniel Abebe<sup>1\*</sup>

<sup>1</sup>Jinka University, Department of Plant Science, College of Agriculture and Natural Resource, Southern Ethiopia.

**\*Corresponding Author:** Daniel Abebe, Jinka University, Department of Plant Science, College of Agriculture and Natural Resource, Southern Ethiopia.

**Received Date:** 06 March 2024; **Accepted Date:** 02 April 2024; **Published date:** 04 April 2024

**Citation:** Daniel Abebe. (2024). The Effects of Transplanting Date on Management of Tobacco Insect Pests. Min review. Journal of Food and Nutrition. 3(1); DOI: 10.58489/2836-2276/025

**Copyright:** © 2024 Daniel Abebe, this is an open-access article distributed under the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited.

## Abstract

The main review purpose this paper provides updated information on the effect of different transplanting dates on the infestation of tobacco insect pests were carried out at different location by different Scholars. The results revealed that different trials conducted in different agro ecological zone indicated that damage was higher and green leaves yield decrease were in late transplanted tobacco. While, the damage was gradually decrease and green leaves yield increase in early transplanted tobacco. Numerous species of insect pests of tobacco affect the crop in the field, in the greenhouse, and in storage. The effect tobacco insect pests reduced green leaf yield, quality and damage roots, leaves, buds parts of plants and others transmit several important tobacco disease pathogens. As management systems for flue-cured tobacco (*Nicotiana tabacum* L.) used different transplanting date were compared to evaluate their influence on insect pests' damage, leaves yield and quality of flue-cured tobacco. The results indicated that early transplanted significantly increase leaf yield, growth parameters and decrease insect pest damage incidence. The study indicated that transplanted has pronounced positive effect on management of tobacco insect pests and growth of tobacco.

**Keywords:** tobacco (flue-cured), different transplanting date, green leaf yield, insect damage.

## Introduction

The tobacco plant is native to South America. It is currently grown in many tropical and subtropical areas of the world. Tobacco is an herbaceous annual or perennial plant in the family Solanaceae. The crop has a thick, hairy stem and large, simple leaves which are oval in shape, produces white, cream, pink or red flowers which grow in large clusters. Tobacco grow in deep, well-drained loamy soils with little or no risk of flooding [1].

Several biotic and abiotic factors limit tobacco leaf yields. They include adverse climate, soils, insects, diseases, weeds, rodents etc. Tobacco is attacked by many insect pests both in nursery and main field. These pests caused considerable damage to seedlings in the nursery and leaf in the transplanted crop reducing yield and quality of crop. The major pests that infest tobacco in the nursery and field are: leaf eating caterpillar, *Spodoptera litura*; whitefly, *Bemisia tabaci*; stem borer, *Scrobipalpa heliopa* in the nursery and in the field infested by ground

beetles, *Mesomorpha villiger*; tobacco bud worm, *Helicoverpa armigera* and tobacco aphid, *Myzus nicotianae*. Moreover, cigarette beetle, *Lasioderma serricorne* is a pest of stored tobacco. Apart from these, minor pests like ants, mole crickets and rove beetles, earthworms and grasshoppers occur in the nursery, and stink bug, *Nazara viridula* occurs in the field crop. It is roughly estimated that about 34% loss of cured leaf can be avoided by adopting appropriate pest management practices [2-3].

Tobacco is one of important agriculture crop, in Ethiopia, with social and economic importance and grown for commercial purposes by state-owned farms and farmers around those farms. Green leaves produced by small-scale farmers yield and quality remains low due to different constraints. Among constraints, transplanting time is an important factor which affect yield and growth of crop. Therefore, adjusting time of transplanting dates an essential cultural management practice that increase yield and quality leaves of tobacco [4,5 &6]

Researches results conducted on effect of transplanted time indicated that adjusting time of transplanting often helps tobacco crop to escape from infestation of insect pests and to harvest highest green leaves yields [7]. The integrated pest management (IPM) system is important in combining cultural, natural, and chemical controls in order to maintain insect pest population and promote the use of insecticides only when necessary [8]. Hence, keeping the above concept in view, therefore, in this review attempted made to evaluate the effectiveness of different transplanting dates for the management of tobacco in different region.

### Materials And Methods

As a methodology different journal articles used to review from these peer reviewed data. Through searching results 15 papers were retrieved and by reading abstract, key work and conclusion parts of these paper were identified that meet the objective of this report.

### Research Result Review on Effect of Different Transplanting Dates for Control of Tobacco Pests

Tobacco is attacked by variety of soil, foliar, and stored tobacco insect pests can attack tobacco from transplant through harvest through the grown period [9]. Aphid cause indirect losses; their feeding reduces plant vigor, they may spread viruses, and sooty mold produced when large populations of aphids are present reduces tobacco quality; flea beetles cause stress when feeding on young plants and directly damage harvestable leaf when feeding on mature plants; and hornworms and budworms causes direct losses by feeding direct on plant leaves.

Tobacco insect pests are active at predictable times during the growing season flea beetle infested tobacco 1 weeks after transplanted until harvest; Horn worms started 3 weeks after transplanted until topping; Aphid and bud worms at 3 weeks after transplanted and cut worms 1-4 weeks after transplanted. Timely field checks and use of treatment guidelines will allow early detection and assessment of problems, so sound pest management decisions can be made [10].

Cultural control methods involve of utilizing alternative crop rotation, proper sanitation of fields, tillage, trap cropping, alternative planting dates, and host plant resistance to limit damage to crops or reduce pest population [11]. [12] conducted field trial in 1987-1989 to study the influence of transplanting dates on tobacco budworms threshold density indicated that tobacco budworms population density of less than one per 20 plants in the early

transplanted tobacco (late march) while late transplanted (late April) tobacco budworms threshold levels (1,2,4, or 8) budworms per 20 plants significantly affected affect tobacco quality, yield and budworm damage.

Date of planting is one of the crop habitat diversifications that are to be looked into, to minimize the incidence of insect pests on tobacco so that its can be enhanced yield. Late- planted tobacco is also at greater risk from leaf diseases such as brown spot caused by *Alternaria*, weather damage, and damage from insects such as budworms and aphids [13]. Besides late transplanted tobacco caused more rapid growth, hasten floral initiation, produce thinner leaves, and possibly hasten senescence and reduce yields [14].

Aphid abundance was significantly lower in transplanting tobacco 10 days after garlic transplantation at a density of 5.85 individual plants per square meter than in the other treatments that showed experiment conducted in Liancheng County in Longyan City, Fujian Province, in China in 2014 and 2015 by [15].

### Conclusion

The review articles concluded that the need for demonstrations on the use early transplanting dates of effective insect pests control methods, and all found effective in management of pests in agriculture they need to be validated scientifically

### Acknowledgments

This review article contains information gathered from numerous published resources, and thus I would like to extend our appreciation to all authors of the references used in this manuscript

### References

1. Srinivasa, Rao,Sudeep Marwaha, N., Ravisankar, H., Siva Raju,K., Arijit, S., and Chandan, K. D. (2016) Expert System for Identification of Diseases in Tobacco. Journal of Basic and Applied Engineering Research. Volume 3, Issue 6, pp. 561-563.
2. Damodar, R. (2019) Agronomic practices for FCV tobacco field crop in karnataka light soils. training manual on basics of FCV tobacco production.
3. Bill, N., Lee, T., and Lowell, S. (1999) Crop Profile for Tobacco in Kentucky. University of Kentucky, Lexington, KY 40546-00917
4. Katundu, J. M., & Kulembwa, I. M. (1980). The Effect of Planting Date and Application of Dimethoate on Aphid Infestation and Incidence of Tobacco Rosette and Bushy Top in Tanzania. East African Agricultural and Forestry

Journal, 46(1-4), 62-70.

5. Daniel, A. (2022) The Effects of Transplanting Date on Growth and Prevalence of Bushy Top Disease of Flue-Cured Tobacco. *Annals of Biological Sciences*. Vol.10 No. :033
6. Regassa, G., & Chandravanshi, B. S. (2016). Levels of heavy metals in the raw and processed Ethiopian tobacco leaves. *SpringerPlus*, 5, 1-9.
7. ALI, S., & JAN, A. (2014). Sowing dates and nitrogen level effect on yield and yield attributes of sesame cultivars. *Sarhad Journal of Agriculture*, 30(2).
8. Tobacco production guideline 2015. Department of Agriculture, Forestry and Fisheries
9. Akehurst, B.C. (1968) Tobacco Tropical Agriculture series. Humanities press, N4.551p
10. Sebe, B., Mitcheli, R., and David, R. (2023) Insect pest management. *Burley and Dark Tobacco Production Guide* A cooperative effort of the University of Kentucky, the University of Tennessee, Virginia Tech, and NC State University
11. Hokkanen, H. M. (1991). Trap cropping in pest management. *Annual review of entomology*, 36(1), 119-138.
12. McPherson, R. M., Bondari, K., & Stephenson, M. G. (1992). Influence of transplanting date and tobacco budworm (Lepidoptera: Noctuidae) treatment threshold density on flue-cured tobacco quality and yield and secondary pests. *Journal of economic entomology*, 85(5), 1940-1945.
13. Gwynn, G. R. (1969). Influence of Harvesting Methods on Flue-Cured Tobacco 1. *Agronomy Journal*, 61(3), 429-433.
14. Gooden, D. T., Woltz, W. G., Long, R., Gwynn, G. R., & Rawlings, J. O. (1976). Influence of management systems, cultivars, and planting dates on flue-cured tobacco production: 1. Agronomic characters. *Tob. Sci*, 20, 120-124.
15. Lai, R., You, M., Lotz, L. A. P., & Vasseur, L. (2011). Response of green peach aphids and other arthropods to garlic intercropped with tobacco. *Agronomy journal*, 103(3), 856-863.