INTRODUCTION

Tomato, an introduction from Tropical America, found favour during the last 3 or 4 decades in India owing to its diverse culinary qualities such as salads, soups, preserves, pickles, sauce and ketchups etc., besides its use as a vegetable. Vegetarians in this country have accepted it as the most important nutritive item, incorporating in their diet the much needed vitamins A and C and other health promoting natural acids.

The crop is generally grown during the winter months (October-April) in the plains of India, but in most of the tracts of Himachal Pradesh, owing to its congenial climatic conditions it is raised during the summer months (April-October). This off-season fruiting gives Himachal Pradesh a unique opportunity and benefits the cultivators monetarily due to the heavy demand for this vegetable in the markets of the adjoining States, particularly Delhi, Ludhiana, Jullundur, Amritsar and Chandigarh. Solan area being nearer to plains has naturally sprung up as the main centre for supplying tomatoes during the off-season, extending from June to October or even later. Approximately 18,500 quintals of tomatoes were exported from Solan area alone during the season to adjoining States of North India (Sharma et al., 1966). Because of the better economic gains the area under this crop in Himachal Pradesh has increased manyfold during the past few years. Exact figures about its acreage and production are not available, though rough estimates put it as about 1,000 hectares with an out turn of approximately 45,000 quintals of tomato. Most of this is raised in Solan, Saproon, Mandi and Kulu areas.

Prevalence of high humidity and warm temperatures during the growing season of the crop favours the development of various fungal diseases, of which buckeye rot (Phytophthora parasitica Dast.) is of
great importance because of its direct damage not only to the plant but also to the fruit. The disease was first observed during 1958 at Crop Research Station, Solan by Jain et al. (1961), when they reported a loss of 35 to 40 per cent of the fruits. The disease is now widespread in areas of mid-hill elevations ranging from 800-1700 meters above sea level. It appears every year and becomes epidemic when the atmospheric temperature is warm coupled with high humidity. The disease usually appears in the second or third week of June depending upon the first monsoon showers, becomes severe during July, continues in August and declines thereafter with no fresh infections taking place by the end of September. The incidence varies with the prevailing weather conditions.

Observations recorded on the field resistance of different commercial varieties in cultivation showed that all these varieties are susceptible to the disease. Since the disease is of recent introduction in the area and it has not been studied so far, it was felt necessary to explore various aspects of this problem. The present study, therefore, deals with the life history of the pathogen, optimum conditions for disease development, perpetuation of the fungus from year to year, its collateral hosts and control of the disease. An attempt has also been made at forecasting the outbreak of the disease. A collection of varieties both exotic as well as indigenous was also screened for resistance with a view to place before the breeders a variety for use in breeding to evolve resistant lines to replace the existing commercial varieties now in cultivation in this area.