found that in the host tissue corn smut has no preference for the nutrients (presence or absence of endosperm) in the normal or abortive kernels, and smut-galls are produced equally vigorously on both normal and aborted kernels.

Further, we have also observed that chlamydospores from infected kernels when transferred to a new host will produce only the kernel-galls in the next cycle of chlamydospore formation.

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4. Rootlessness, an unusual character found in some young seedlings of teosinte.

Normally, when teosinte seeds are exposed to optimum conditions of germination in the laboratory, germination begins by an orderly succession of developmental steps. The seed first imbibes water and swells and finally the coleorhiza (primary root) extends out from the root-pore (pulvinus notch) of the fruit-case and grows downward. A few hours later a coleoptile with embryonic leaves projects from the apical shoot-pore, following this the coleoptile ruptures and the young leaf expands. During this period a few secondary roots are formed which actually extend out from the shoot-pore. These secondary roots are not sensitive to gravity at first, but only gradually develop downward and become functional. When seeds are sown in the soil, the elongating embryonic leaves remain ensheathed in the coleoptile until they reach the soil surface. Occasionally, both the primary root and shoot emerge simultaneously from the seed-case and finally the seedlings become established. The germination pattern of teosinte seeds is very similar to that of maize.

In the present investigation we have studied variations in the germination pattern. The seeds of various documented teosinte races were allowed to germinate in laboratory conditions (at 24-25°C, room temp.). The seeds were first soaked in glass-distilled water for 3 hrs., then kept in paper cups with moist paper towels, covered with Saranwrap to retain moisture. The scoring for germination was done on the 9th and 11th days. Apart from the two normal germination patterns discussed above, two new types of seedlings with rootless character are recorded here. In the

first case, germination was featured by only 2 or 3 secondary roots which projected from the shoot-pore of the fruit-case; following this, the primary shoot emerged from the shoot-pore. Primary roots are never produced by these seedlings and they are comparable to the rootless maize seedlings "really rootless" as reported by Nickerson (MGCNL 40:142-144, 1966). If these seedlings are planted in soil they survive at least under greenhouse conditions. In the second rootless type no primary or secondary roots are ever produced, but the primary shoot emerges from the seeds. The seedlings remain alive as long as they can utilize the stored food in the endosperm. We consider them as "totally rootless" seedlings and they never reach maturity. Moreover, we have noticed that rootless seedlings are slightly darker green than normal seedlings. This suggests that these seedlings are metabolically more active than the normal.

The following races of teosinte from different localities were found to exhibit "rootlessness" in their seedlings: (1) Edo de Mexico, Chalco about 30%; (2) Edo de Mexico, Amecameca 20%; (3) Edo de Mexico, Los Reyes 10%; (4) Guanajuato #45121, 10%; and (5) Huehuetenango, Tzisbaj (Guatemala) 10%. The percentages reported here are based on only ten seedlings; further germination tests should be made to establish the reliability of the percentage.

No "rootless" seedlings were found in the following races: (6) Jutiapa #51186 from Guatemala; (7) Huehuetenango Huista, Guatemala; (8) Michoacan #45320; (9) Guanajuato #46452; (10) Guerrero #47259; (11) Guerrero #47269; (12) Guerrero #47335; and (13) Chihuahua, Nobogame (for the accuracy of the collection number or locality, see Wilkes, H. G., 1967, The Bussey Institution, Harvard University Publication).

We are thankful to Dr. H. G. Wilkes of the University of Massachusetts at Boston, Mass. for the supply of seeds used in this investigation.

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