PBG 431 Plant Genetics recitation

Sex determination in hops

*Humulus lupulus L* or Hop is a dioecious plant, where the cones or inflorescences are the reproductive structures harvested and used for beer production. Within the cones, lupulin glands are the components responsible to giving the aroma and bitterness. A key concept in this crop is sex determination because plant sex is determined by either XX or XY chromosomes. The cones are just found in females and are produced with or without presence of male plants. Male plants are just used for breeding proposes. Identification of female plants in early stages in a breeding program is becoming an area of research.

1. Describe how male and female hop plants are crossed, in the field, by plant breeders to obtain new possible varieties.
2. Once a cross has been made and progeny developed (as in questions 1, above) why does the plant breeder want to know the sexof the progeny as soon as possible?