



Ploidy determination

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Potato has three independent cell layers. When ploidy of a natural plant is to be determined, it does not matter how you do it, since all layers' ploidy will be the same, having descended from a single cell (the embryo). But when artificial treatments like colchicine are applied, one layer is often doubled preferentially. One usually wants doubling for crossing, so doubling of the central, sporogoneous layer is desired. Thus, counting root tip chromosomes or looking at guard cells is not helpful. A very quick and efficient method of screening for doubled plants is measuring pollen diameters. As at left, the largest, well stained, common pollen of a diploid is $2\frac{1}{2}$ units (top), while that of a tetraploid is fully 3 units. Confirmation may be done by counting microspore mother cell chromosomes, or by crossability.