

More about curious mottling in highly paramutant R1 kernels

--Coe, E

In a previous note I asked, "Mottling expression is curious, and so is blotching – what is responsible?" This note does not answer the question but gives more information.

Typical mottling of r/r/R kernels shows colored aleurone cells in irregular, scattered distributions that are inconsistent with the morphogenesis of the aleurone layer. Tantalizing clues appear with highly paramutant *R1-iv* or *R1-v* (four or five times paramutagenized), in which pigmented cells are greatly reduced in frequency. The distributions suggest some systematic process is at play. Photographs at high magnification have been added to the database:

http://images.maizedb.org/db_images/Variation/coe0022-1683/059.jpg

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In highly paramutant genotypes there may be as few as 10-20 colored cells in an entire aleurone tissue of some 160,000 cells. If each cell makes an independent decision to be "on" or "off", a binomial or Poisson distribution would result in a random display of single colored cells. However, colored cells occur not in single, independently pigmented cells, but in irregular, very localized clusters, as seen in the images.

What do the clusters suggest?