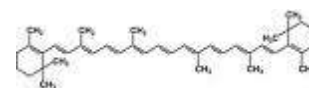


Flower Fields by Sue Park

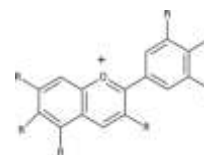


Dutch bulbs are grown in colorful fields in the Netherlands. Fields of tulips and hyacinths like this one will produce 65% of the world's bulbs. The Dutch flower growers use chemistry in all aspects of their successful industry. All sorts of chemical agents such as fertilizers, pesticides and herbicides are used to produce the beautiful flowers. The flowers get their gorgeous color from chemicals called pigments. A pigment is a molecule that absorbs light and has a color. Flower pigments are the result of chemicals called flavonoids, carotenoids, chlorophyll *a*, and chlorophyll *b*. The combinations of pigments and the pH of the soil give each flower its color.

Carotenoids are compounds containing carbon atoms which are arranged in straight chains ending with rings. Flowers containing carotenoids are yellow or orange.



Flavonoids are compounds containing carbon rings. Flowers with flavonoids are red, blue, and purple.



Chlorophyll *a* and chlorophyll *b* consist of a straight chain and rings. Chlorophyll *a* is responsible for blue-green flowers, and chlorophyll *b* produces yellow-green flowers.

