DAILY BREAD

"Grain of Hope : Slice of Heaven"

HARVEST

Photograph of Surface of the Sun. Credit: NSF

Wheat-fire

It is as though the sun-months this wheat has stored
are being converted into fire and light
in one profligate gesture:

a whole field
blazing gold, bursting out of the smoke
of an early morning mist

like a damped hearth
that has smouldered until dawn and now is stirred
by the light's long poker-ray

so that our eyes,
so long soothed and duped by steady green,
adjust to dazzle, suddenly forced to live

in a Midas world;

as if the liquid fire-ball
which burns deep in our planet's core was rising
volcano-like, spewing its glowing lava

over the dark earth-surface

to astonish
that this grass-plant sprung out of mud can flare
with the gold of a young sun, can fling through space
its seed-sparks:

soon the whirling fire in the sky
will bury its head in the massed green of a tree,
experiment with a whole flickering range
of flame colours;

while the wheat sinks
to a stubble-expanse of scorched brown,
a burn-scar on which the approaching winter

will press its damp poultice.

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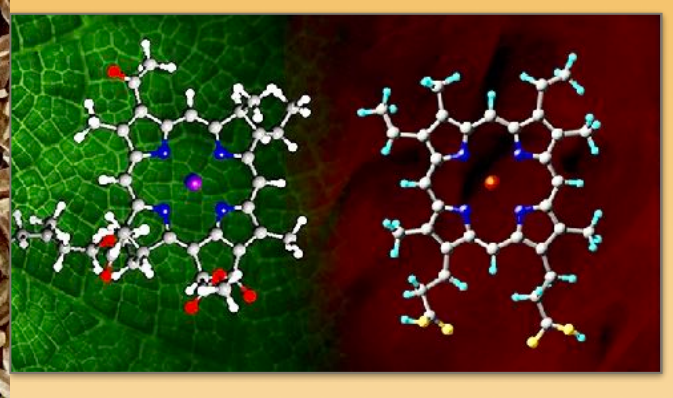
A ROCHA GOLD AWARD WINNER 2018 ECO CHURCH learn more

Harvesting light

Energy transformations have driven the whole life of the wheat plant. Since the germinating seed first poked its apical meristem above the soil and turned green, the plant has responded to light, orienting and opening itself to bathe in the flood of photons pouring from the sun. Perhaps 1% of available photons are captured by molecular funnels embedded in the membranes of chloroplasts, themselves packed into cells on the top surfaces of leaves, as close as they can get to the light. These tiny packets of energy ricochet through the system to a chlorophyll molecule waiting at the bottom. Absorption of a photon by chlorophyll causes ejection of high energy electrons. The light, now captured as electro-chemical energy, is on its way to incorporation into organic molecules such as glucose that the plant will use to grow itself.

The plant makes itself with light – photosynthesis.



Senescence (aging) is an integral part of the wheat's life cycle, and to our eyes, the aim of the whole business of growing crops. Transformation of a bright green growing expanse into what we exult in as fields of gold involves drawing in, storing up and death. Responding to the waning light, chlorophyll is transformed into colourless tetrapyrroles, and metabolic processes begin to close down. Meanwhile, nutrient mobilisation is underway and a stream of compounds, especially nitrogenous ones, is drawn away from stems and leaves and into the grain. Nitrogen is the basis of protein, so protein content of the grain is determined by the extent of this redirection.

What remains after the harvest is chaff – especially the shiny, scaly seed casings that catch the light and give that golden glow. Chaff gets a metaphorical bad press but it makes excellent roughage for ruminants and is now being used to purify water by filtering out heavy metals.

The chaff from our wheat collected after threshing and winnowing - a dusty job.