

Bright Index is built from red channel (R) and near infrared (NIR) using the formula $BI = \sqrt{R \times R + NIR \times NIR}$. Bright index is the brightness average of the image. This index is therefore sensitive to the brightness of the soil: moisture and presence of salts. It especially characterizes the albedo.

Bright index is used to estimate whether the observed surface element is light or dark. Dark is caused by various phenomena that can be combined:

- the surface was wetted (after precipitation or irrigation).
- the surface roughness is increased (after plowing for example).
- vegetation cover has increased.

Enlightenment is of course the opposite phenomenon, and often leads to a degradation of the environment. The interpretation of this index is not always easy.



Bright Index has values between 1 and 100 and the legend above is represented by 3 classes.

The bright index map describe how the surface of a bare soil reflects sunlight. The brightness of the ground includes the combined effects of soil type (type of clay minerals), soil organic matter and soil moisture content at the date of image acquisition. While the type of soil and the organic matter are very stable over time, the moisture of the soil surface layer varies.

Applications

The BI maps are useful for the following applications:

- Optimal placement of the analysis of soil samples considering variability.
- Viewing layers of potential for creating management zones.
- Analysis of soil moisture conditions.
- Identification of areas where drainage management is required.
- Planning stages of harvest.

Reflectance curves of soils

