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## Better integration of nutritional quality of plants in ecological research

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Plant nutritional traits (or nutritional values) are a fundamental property of the food web and also important for human beings' health. Much research on nutritional values has focused on a small selected group of plants and primarily crops, but their broader importance for wild animals has been neglected. In particular, the effect of climate change on the nutritional quality of plants is poorly understood even though it may have major implications for the food web and ecosystems. Here we use a dataset covering > 1450 plant species to identify the factors driving plants nutritional properties and develop global projections. We reveal that plant type, CO<sub>2</sub>, and solar radiation are major drivers controlling nutritional properties. Projections for 2050 show a decline in nutritional quality (-8%, on average at the global scale), measured as the protein to fiber ratio, a strong decrease in minerals (-18%), and a small decrease in digestibility (-3%). Plants in arid and tropical areas will experience the largest decline in quality, which will decline minimally in temperate areas and improve in cold, and polar regions. Quality trends will be opposite in grasses. These results have important implications for human's health, livestock management, and wildlife conservation.