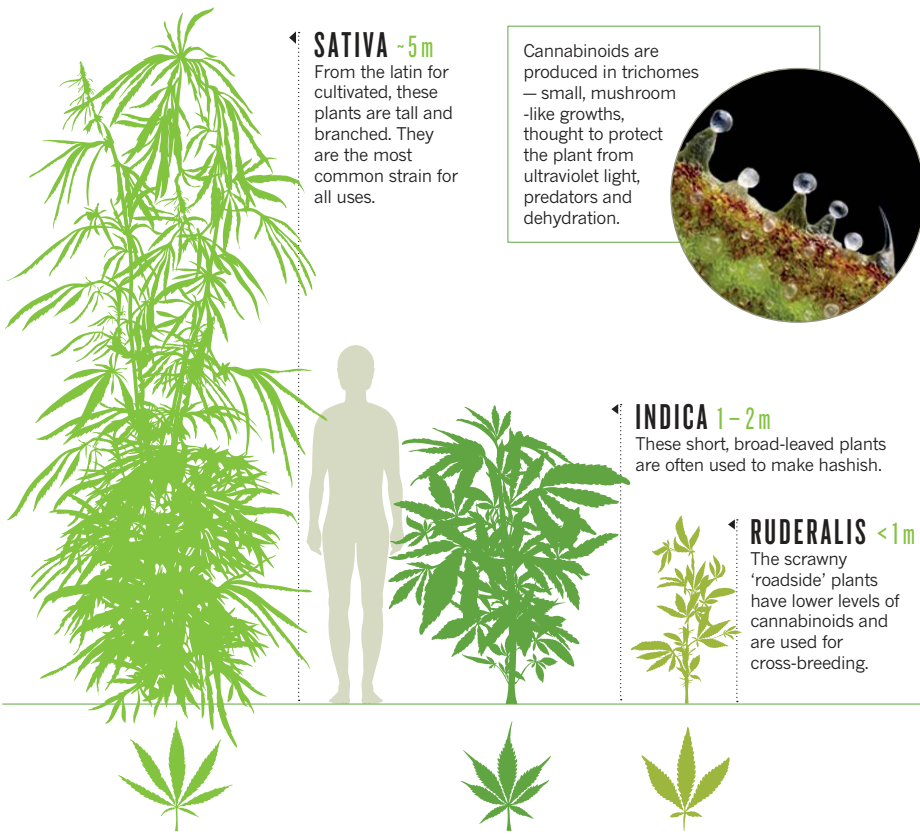


THE CANNABIS CROP

Cannabis is one of humanity's oldest cultivated crops. But despite its long history and many uses, hard facts on its evolution and impact on the human body are in short supply. By Julie Gould.

WHAT IS WEED?

Various strains of cannabis exist, but there is no consensus on taxonomy. *Sativa*, *indica* and *ruderalis* might be three separate species or subspecies of *Cannabis sativa*.



DIVERSE USES

Cannabis plants grown for fibre or hemp oil will differ in chemical make-up from those grown for medicinal or recreational use.



Material
The outer layer of the plant consists of long bast fibres, which can be used to make fabrics.



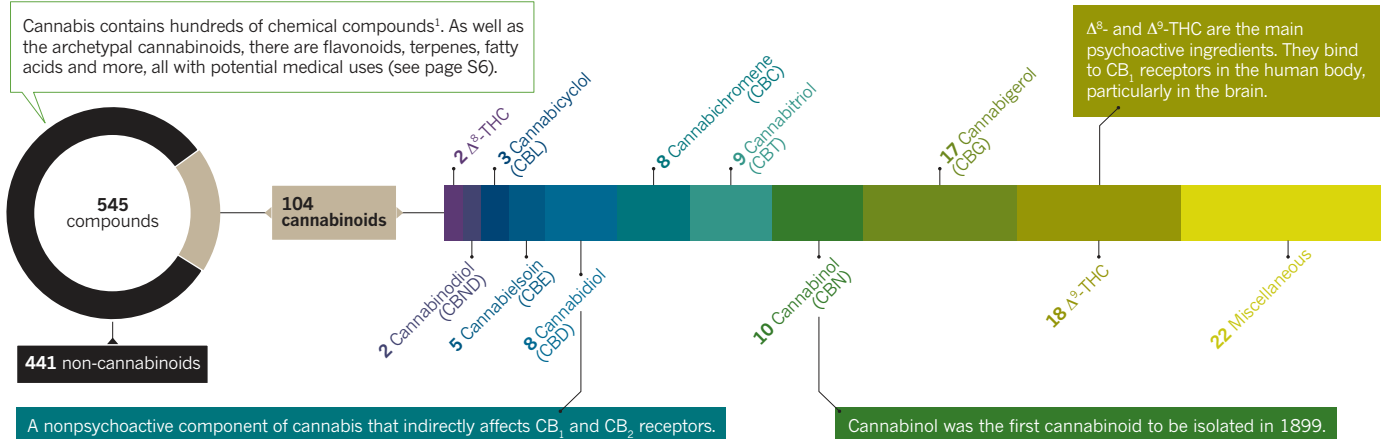
Medicine and intoxicants
Trichomes on leaves and buds (pictured) produce the plant's medically useful substances.



Food and cosmetics
Hemp seeds are technically nuts and contain more than 30% oil and 25% protein.

CHEMICAL CONSTITUENTS

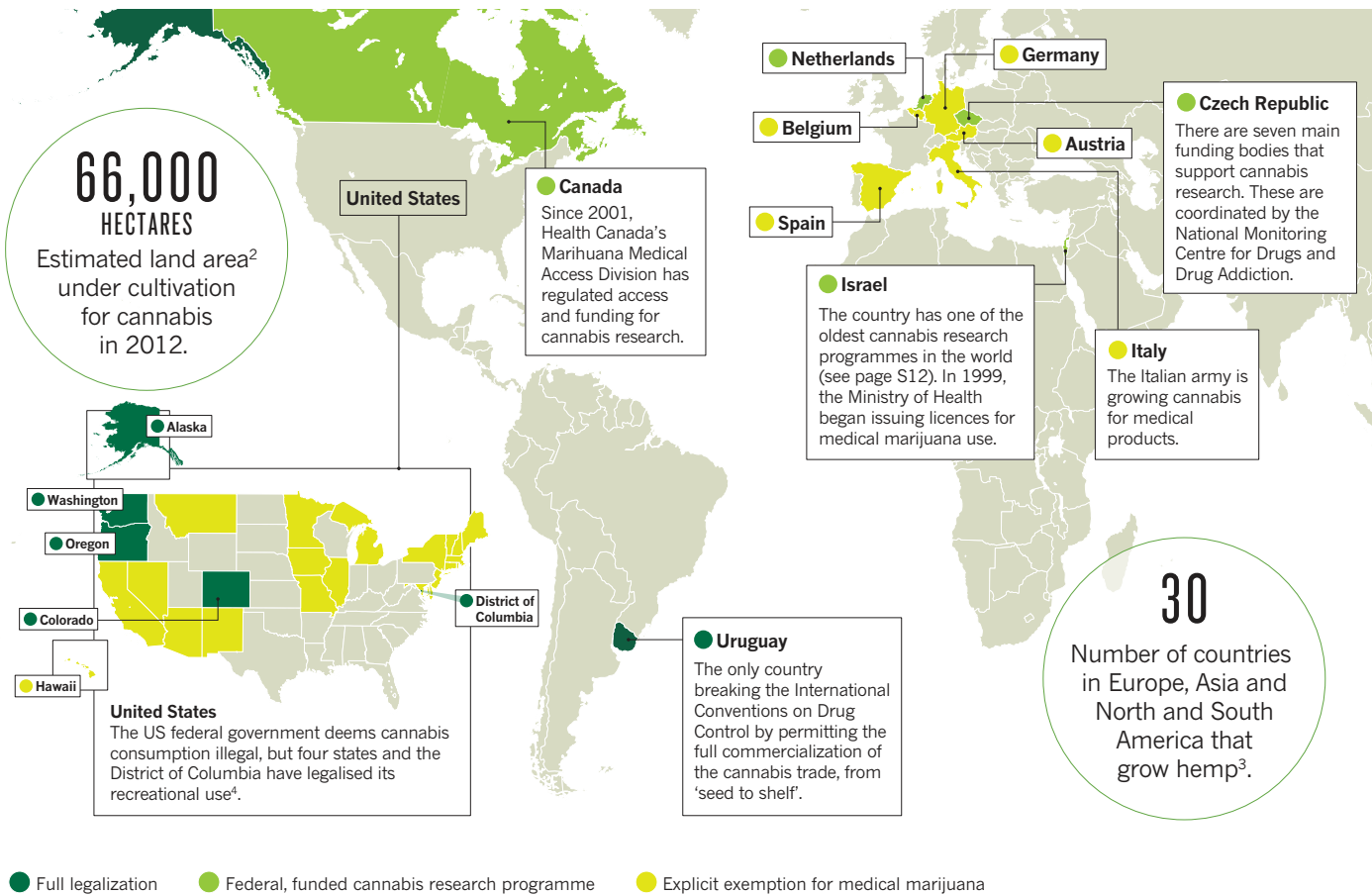
Tetrahydrocannabinol (THC) is responsible for the mental high that can result from using cannabis. But there are many other cannabinoids and chemicals found in the plant, the roles of which are as yet unknown.



CLOCKWISE FROM TOP LEFT: ANTONIO ROMERO/SPL; CREATIVE COMMONS; DAVE LONG/GETTY IMAGES; D-KURU/WIKIMEDIA COMMONS

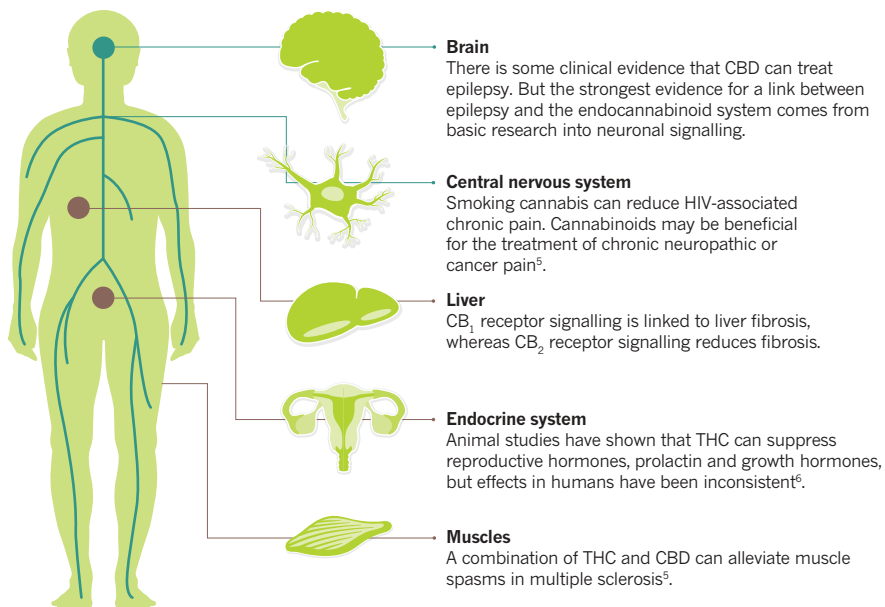
THE RESEARCH LANDSCAPE

The legal status of cannabis worldwide is in flux. One country and several US states have made herbal cannabis fully legal. Four countries have formal federal research programmes. Elsewhere, many countries have special exemptions for prescribed medical cannabis; others have decriminalized possession (not shown). Outside Europe and North America, however, severe punishments for even minor offences are common.



PHYSIOLOGICAL PROCESSES

The body's endocannabinoid system was discovered in 1988 as a result of THC research. So far, only two receptors have been studied in detail, although more have been found. Despite what the name suggests, there is not an exclusive relationship between cannabinoids and the endocannabinoid system: phytocannabinoids target a range of receptors.



● CB₁ **● CB₂**

The two best known cannabinoid receptors are: CB₁, which is mostly found in the central nervous system and to a lesser extent in peripheral nerves, the uterus, testes, bones and other body tissues; and CB₂, which exists mostly in the immune system.

1. Pertwee, R. G. (ed) *The Handbook of Cannabis* (Oxford Univ. Press, 2014). 2. United Nations Office on Drugs and Crime. World Drug Report 2014 (UN, 2014); 3. Johnson, R. Hemp as an Agricultural Commodity (Congressional Research Service, 2015). 4. *The Economist*. 5. Whiting, P. F. et al. *J. Am. Med. Assoc.* **313**, 2456-2473 (2015). 6. Brown, T. T. et al. *J. Clin. Pharmacol.* **42**, 90S-96S (2002).