

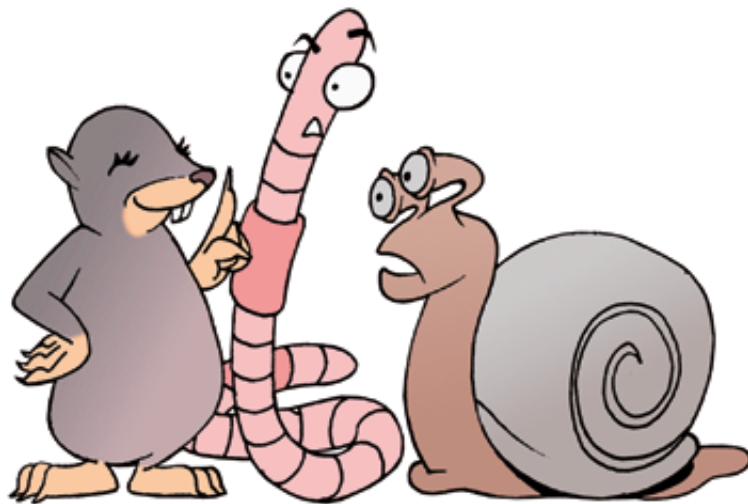
Living in the soil

M^a. PILAR JIMÉNEZ ALEIXANDRE

ESTUDIO TANGARAÑO

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The publication of this comic to commemorate the International Year of Soils has been made possible by the Spanish Society of Soil Science (SECS-Territorial Delegation of Galicia) and the University of Santiago de Compostela.

The Galician Culture Council published, in the Galician language, the comic *Vivir no solo* with the aim of raising awareness amongst young people the importance of soil and the need to protect it.

Recently, it has promoted the adaptation and re-edition of this comic in Spanish for broadcasting nationally. This book is an English translation and adaptation of the Spanish edition of the comic *Vivir en el suelo*.

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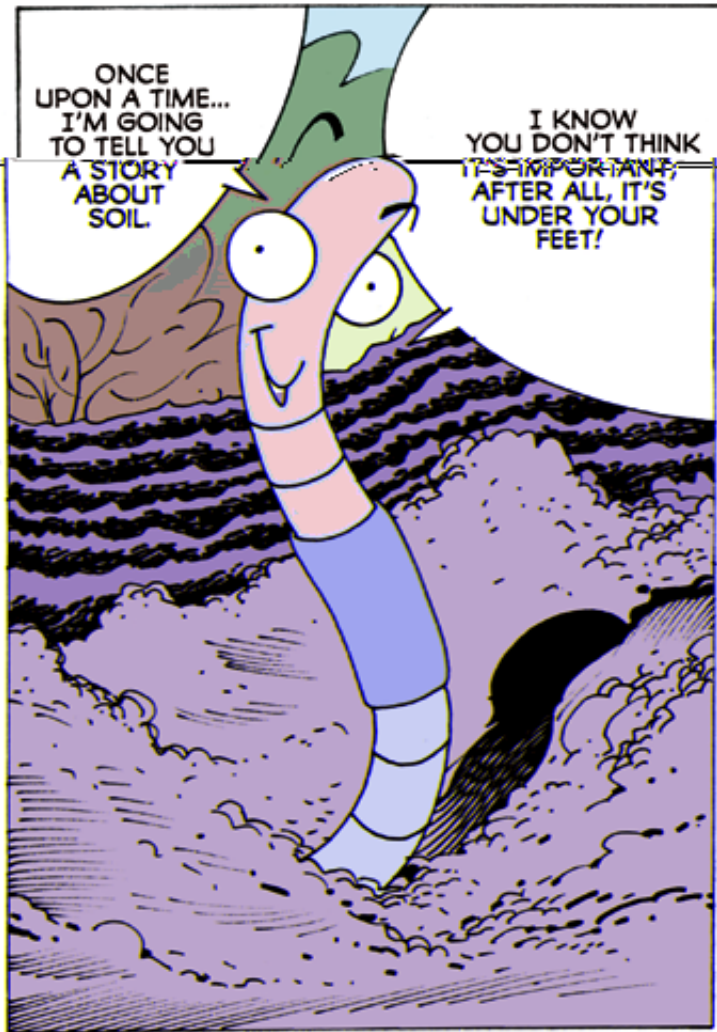
English translation and adaptation: M.T. Barral, M. Díaz-Raviña and F. Díaz-Fierros

Coordination: M. Díaz-Raviña (IIAG-CSIC)

Imprime: Tórculo Comunicación Gráfica, S.A.

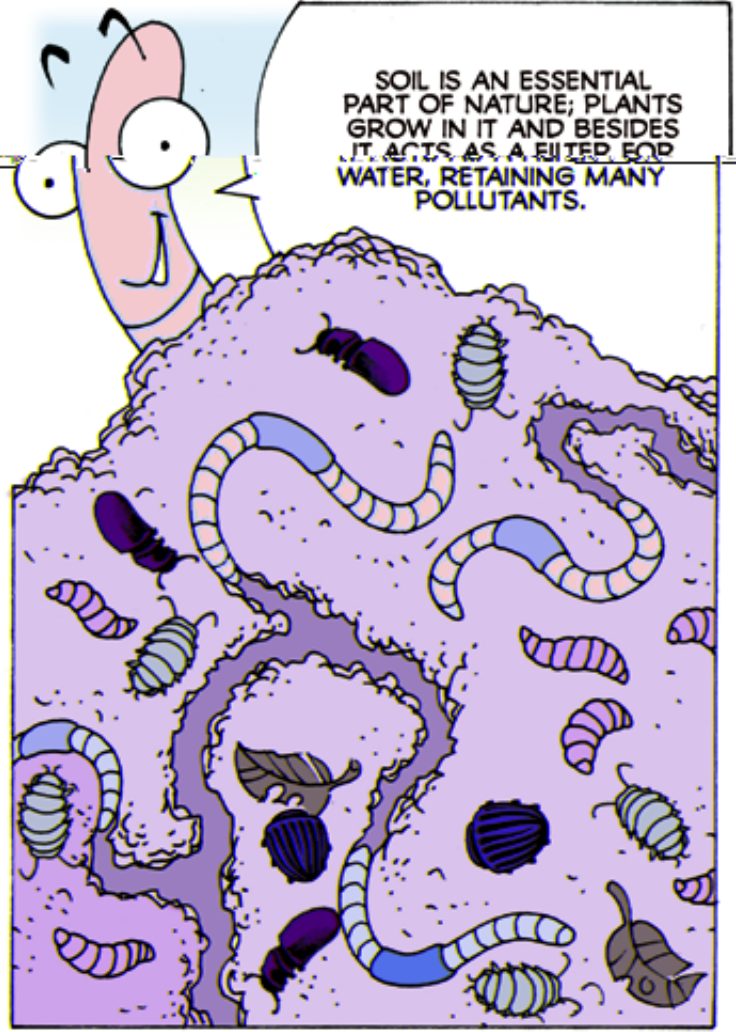
ISBN: 978-84-8408-870-7



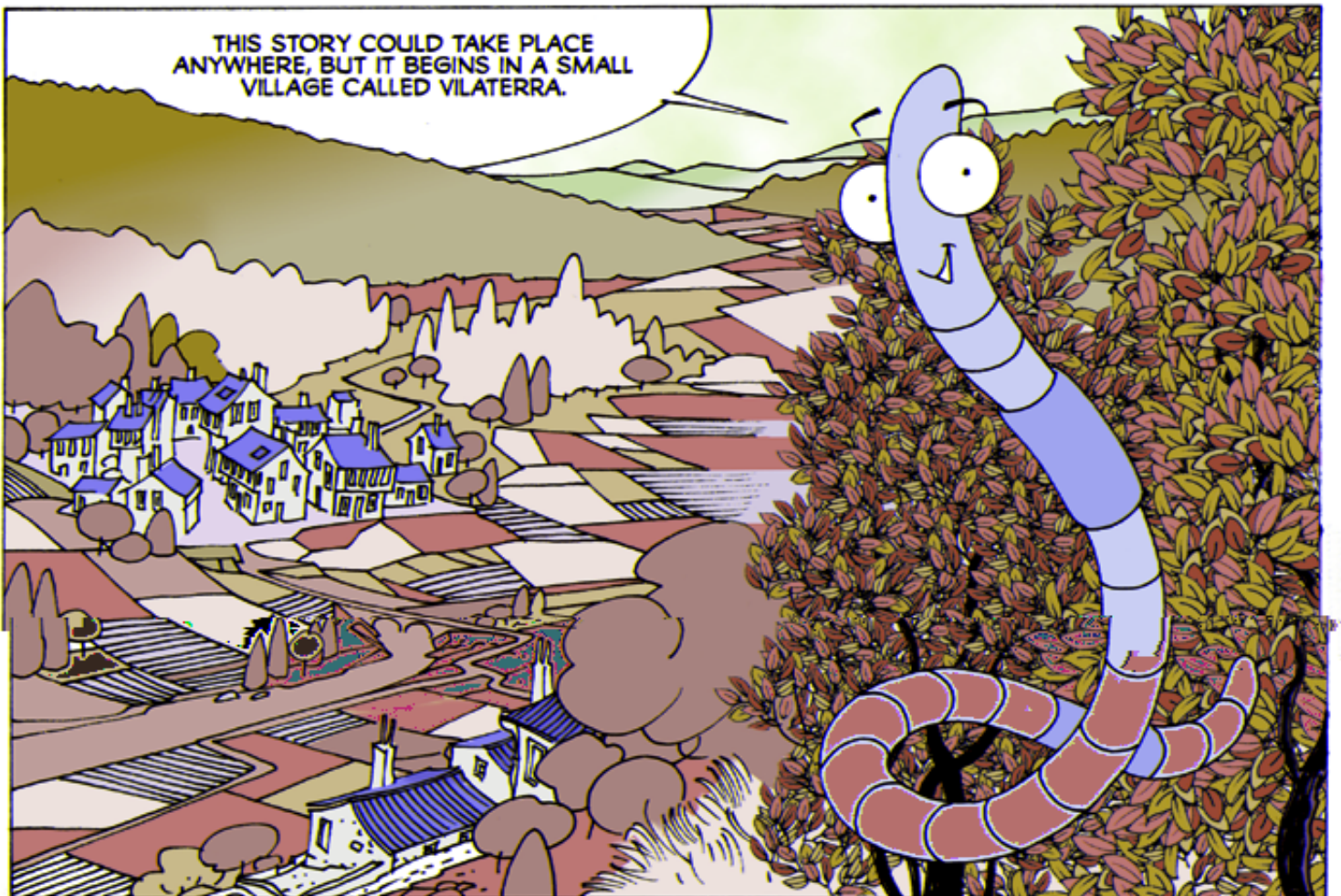


ONCE UPON A TIME... I'M GOING TO TELL YOU A STORY ABOUT SOIL.

I KNOW YOU DON'T THINK IT'S IMPORTANT, AFTER ALL, IT'S UNDER YOUR FEET!



SOIL IS AN ESSENTIAL PART OF NATURE; PLANTS GROW IN IT AND BESIDES IT ACTS AS A FILTER FOR WATER, RETAINING MANY POLLUTANTS.



THIS STORY COULD TAKE PLACE ANYWHERE, BUT IT BEGINS IN A SMALL VILLAGE CALLED VILATERRA.

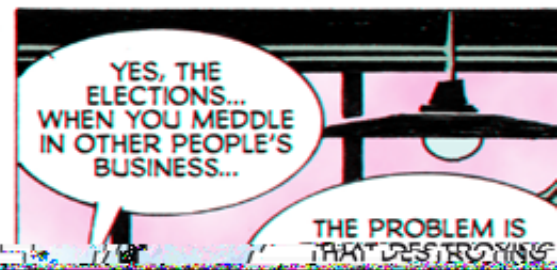
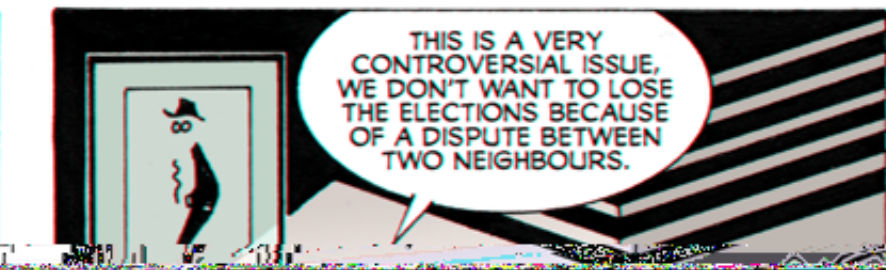
WHAT?
PEPE HAS FILED A
COMPLAINT AGAINST
ME? THIS IS
OUTRA-
GEOGRAPHIC!

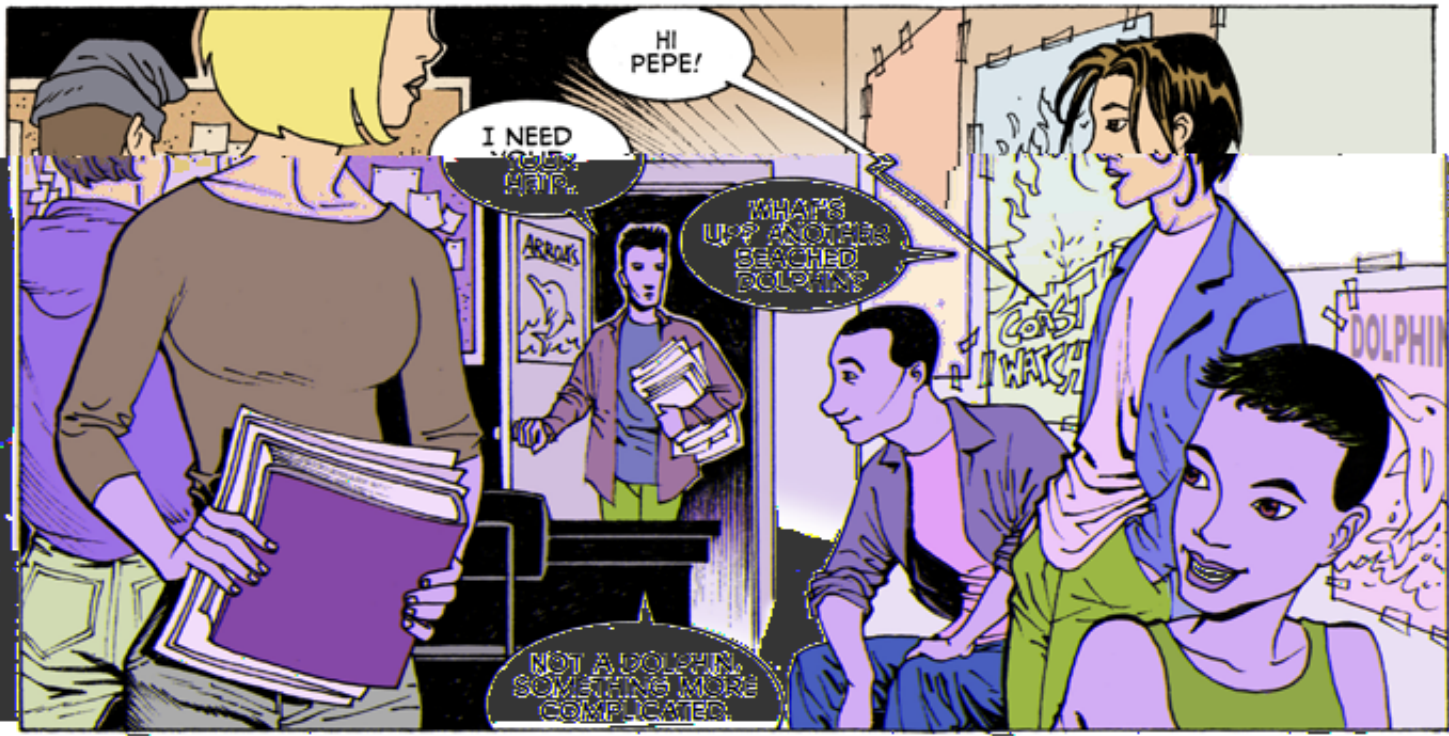
AND UNTIL
THEN, I CAN'T
START BUILDING
THE HOUSE?

UNTIL IT'S
SETTLED...

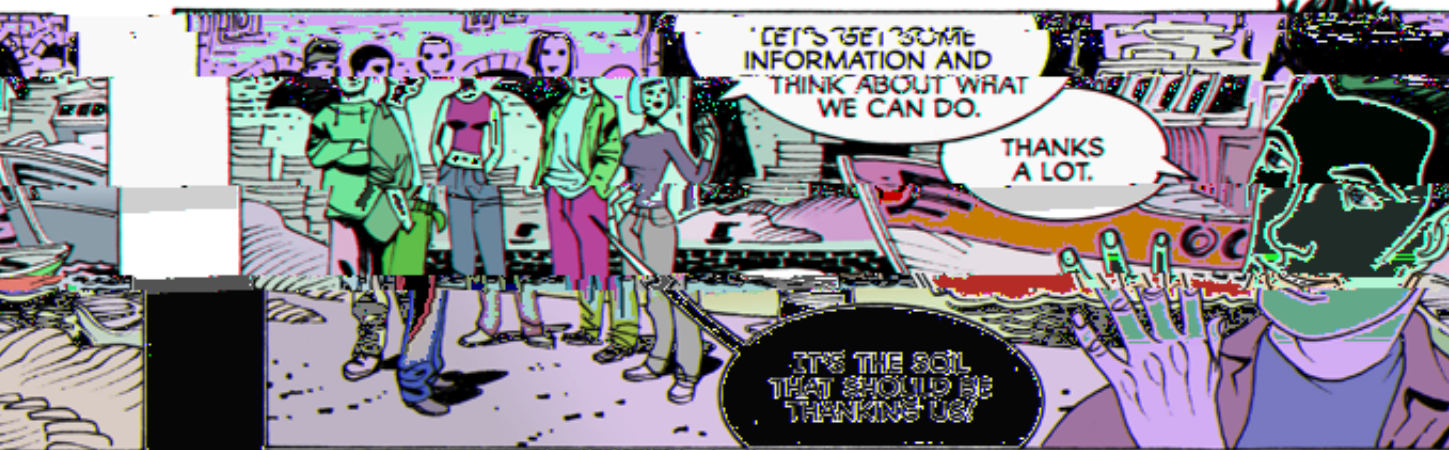
MY SON WANTS
TO BUILD A SUMMER
HOUSE ON THE LAND WE







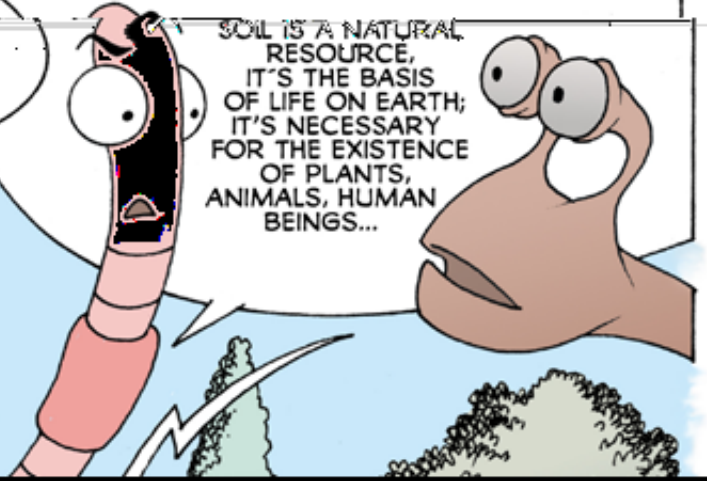
... AND SOME PEOPLE DON'T UNDERSTAND THAT THIS PROBLEM AFFECTS EVERYONE. IT'S JUST THAT WE DON'T KNOW ANYTHING ABOUT SOIL ... IT'S DIFFICULT TO EXPLAIN JUST HOW IMPORTANT SOIL IS ... TO START WITH, WE SHOULD LEARN WHY IT'S IMPORTANT.

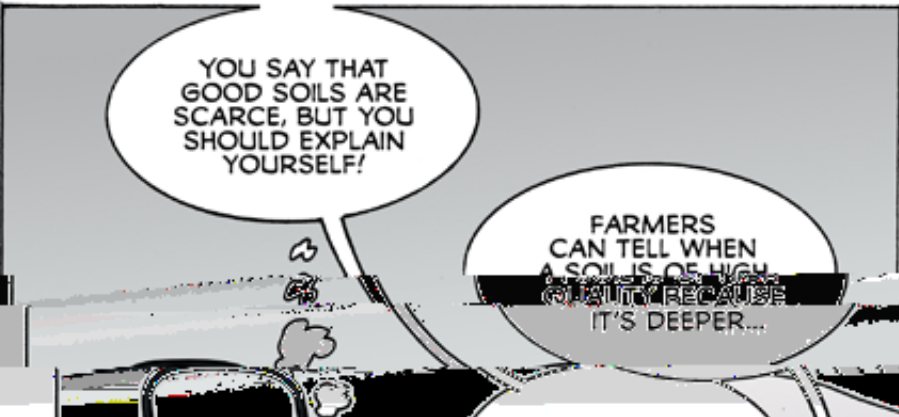


WELL YES, LOTS
~~35- PEOPLE THINK IT'S~~
NECESSARY TO SAVE WHALES
OR OAKS, BUT THEY WOULDN'T
LIFT A FINGER FOR SOIL, AFTER
ALL, IT DOESN'T CRY!

BUT WHAT
HAS SOIL GOT
TO DO WITH THE
ENVIRONMENT
OR ECOLOGY?

SOIL IS A NATURAL
RESOURCE,
IT'S THE BASIS
OF LIFE ON EARTH;
IT'S NECESSARY
FOR THE EXISTENCE
OF PLANTS,
ANIMALS, HUMAN
BEINGS...





YOU SAY THAT GOOD SOILS ARE SCARCE, BUT YOU SHOULD EXPLAIN YOURSELF!

FARMERS CAN TELL WHEN A SOIL IS OF HIGH QUALITY BECAUSE IT'S DEEPER...

IT'S OBVIOUS! TO FARM WE NEED DEPTH.

... AND DARKER

BECAUSE IT CONTAINS MORE ORGANIC MATTER!

PLEASE STOP INTERRUPTING ME!

YOU FORGOT TO SAY THAT IT'S SPONGIER AND RETAINS MORE WATER.

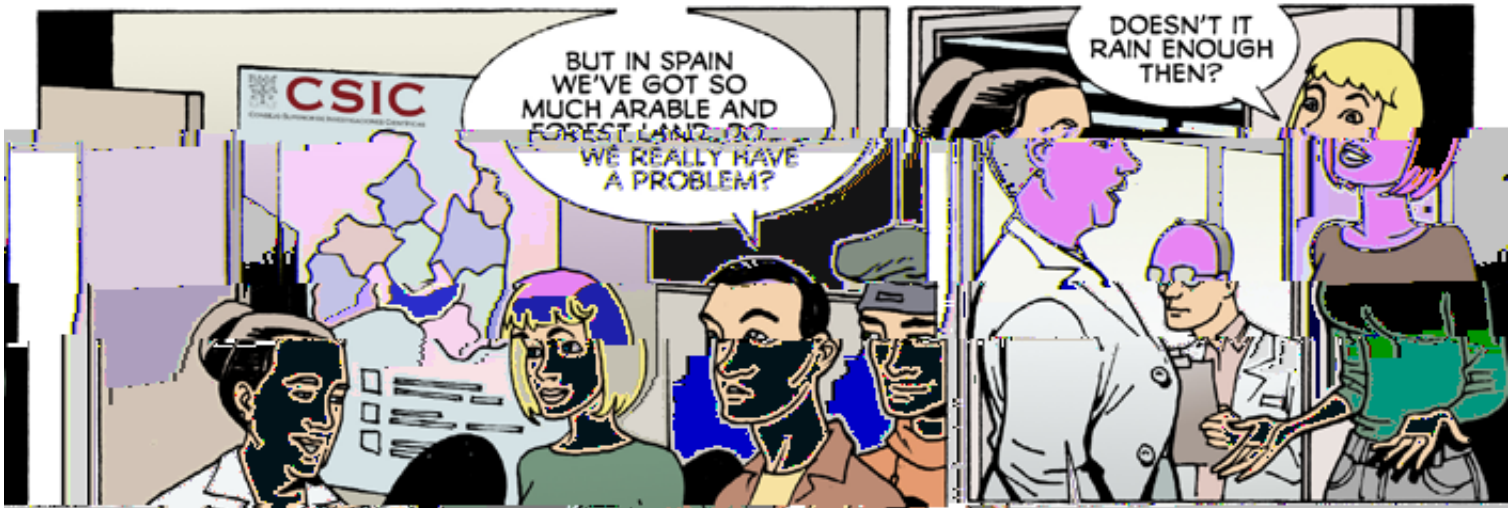
...AND THAT THE ROOTS OF THE VEGETATION PROTECT THEM FROM EROSION.

AND ONE MORE THING: IN GOOD SOILS THERE ARE LOTS OF EARTHWORMS.

NOW I GET IT! WE HAVE TO CONSERVE SOIL JUST LIKE ANIMALS AND PLANTS.

THE THING IS THAT PLANTS NEED SOIL TO LIVE, TO GET NUTRIENTS THROUGH THE WATER THEY ABSORB.

AND ANIMALS LIKE US, MUNCH NEED PLANTS TO LIVE, MUNCH, MUNCH.



BUT IN SPAIN WE'VE GOT SO MUCH ARABLE AND FOREST LAND, DO WE REALLY HAVE A PROBLEM?

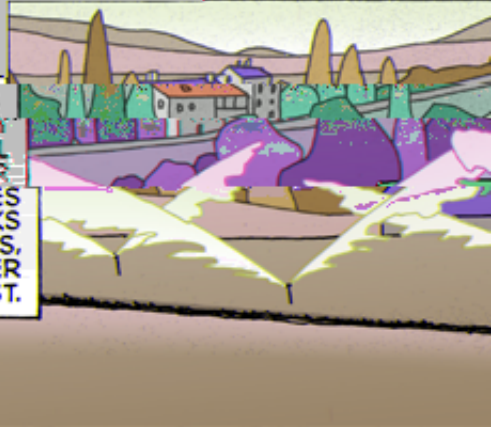
DOESN'T IT RAIN ENOUGH THEN?

IT
UIT
WITH
NFALL
MER.
ION.

IN THE NORTH AND NORTHWEST OF SPAIN, NORMALLY IT DOES, BUT IN THE REST OF THE COUNTRY, WITH A MEDITERRANEAN CLIMATE, RAIN IS SCARCE IN SPRING AND SUMMER. THAT'S WHY THEY NEED IRRIGATION.



IN SPAIN, THERE'S A LOT OF GOOD QUALITY SOILS, BECAUSE IN GENERAL THEY HAVE LITTLE ORGANIC MATTER AND THOSE LOCATED ON SLOPES OR OVER SOME TYPES OF ROCKS ARE VERY SHALLOW. BESIDES, THEY CONTAIN LITTLE WATER WHEN PLANTS NEED IT MOST.



THE BEST FARMLAND, THE DEEPEST AND MOST FERTILE, IS IN FLAT AREAS, WHERE THE SOIL CAN BE WORKED EASILY WITH FARMING MACHINERY.

TREES,
ALSO,
S. HOLM
ARE VERY
USE THEY
SOIL
ION.

IN MY TOWN, THE LATEST RESIDENTIAL DEVELOPMENTS WERE BUILT ON THOSE SOILS.

AND CAN'T WE USE SLOPING SOILS FOR FARMING?

WE CAN PLANT TREES SUCH AS PINE AND OAKS, CHESTNUT OAKS, AND THESE ARE IMPORTANT BECAUSE THEY PROTECT THE SOIL FROM EROSION.



WHAT A DISASTER! THOSE SOILS WILL NEVER BE PRODUCTIVE AGAIN.



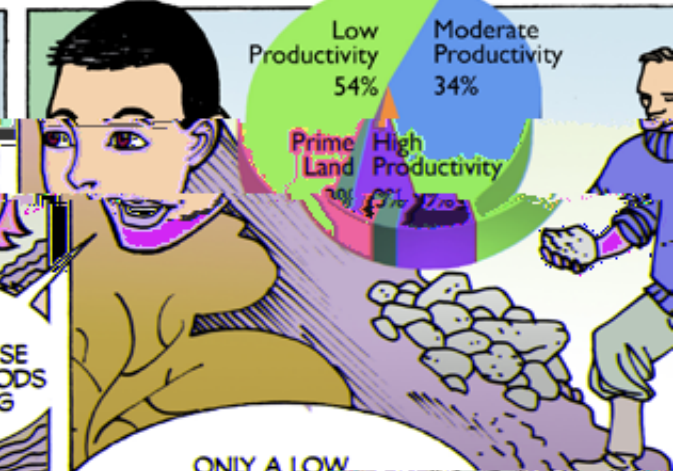
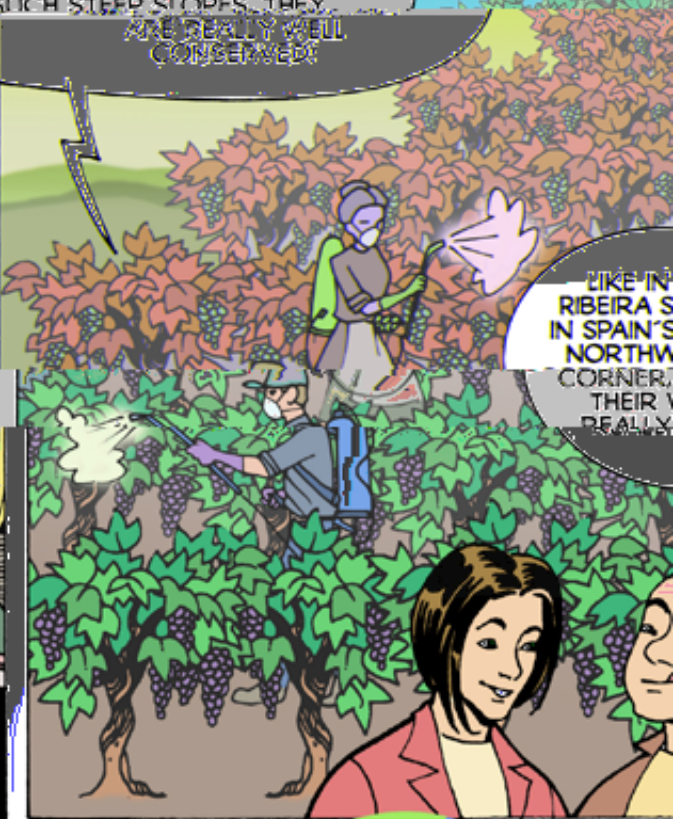
IN THE MEDITERRANEAN, EXCESSIVE GRAZING OVER CENTURIES HAS DESTROYED THE VEGETATION OF MOUNTAINOUS AREAS AND BROUGHT ABOUT A LOT OF EROSION. FOREST FIRES ALSO DESTROY VEGETATION IN THE COUNTRYSIDE.

IN SOME AREAS THEY DIDN'T, BUT IN OTHERS THEY KNEW HOW TO DO IT PROPERLY. LOOK AT THOSE VINEYARDS ON SUCH STEEP SLOPES, THEY ARE REALLY WELL CONSERVED!

DO THE FARMERS ENCOURAGE THE CONSERVATION OF THE SOIL?

THE ACRA, MOST ESPECIALLY GALICIA? WINE IS GOOD.

LIKE IN RIBEIRA S IN SPAIN'S NORTH CORNER? THEIR VINEYARDS ARE REALLY WELL CONSERVED!



IN OTHER AREAS WITH A LOT OF SLOPING LAND, THEY LEARNED TO BUILD TERRACES AND SO THEY COULD FARM THE LAND WITHOUT THE RAIN WASHING AWAY THE SOIL BY EROSION.

I THINK WE SHOULD LEARN MORE ABOUT THESE TRADITIONAL METHODS FOR CONSERVING THE LAND.

ONLY A LOW PERCENTAGE OF THE WORLD'S SOILS ARE GOOD FOR CULTIVATION, 3% ARE PRIME ARABLE LAND AND 9% ARE HIGHLY PRODUCTIVE.

THEIR PRODUCTIVITY IS MODERATE OR POOR, BECAUSE THERE IS A LACK OF WATER, UNFAVOURABLE TOPOGRAPHICAL CONDITIONS OR A LOW NUTRIENT CONTENT.

AND WHAT ABOUT THE OTHERS?

THESE PROBLEMS ARE WORSENERD WHEN LAND IS OCCUPIED BY HOUSING, INDUSTRIES AND ROADS, AS WELL AS THE RESULT OF POLLUTION.

ARE THEY HANDLED BY TRIES WELL IN SOME COUNTRIES?





NOT ALL SOILS CAN BE USED FOR AGRICULTURE OR...

FIRES? BUT SOIL DOESN'T BURN!

IF THERE IS NO

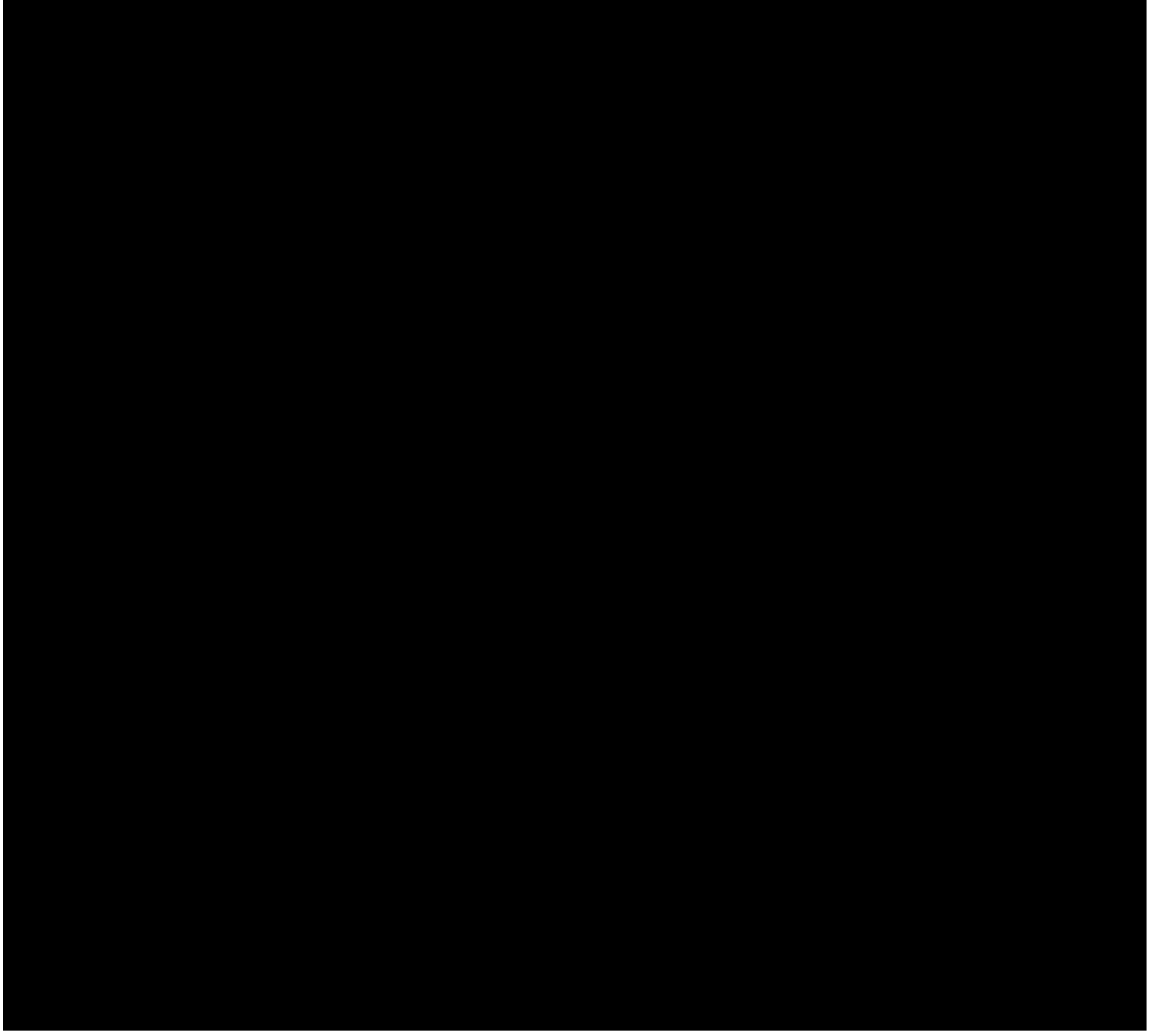
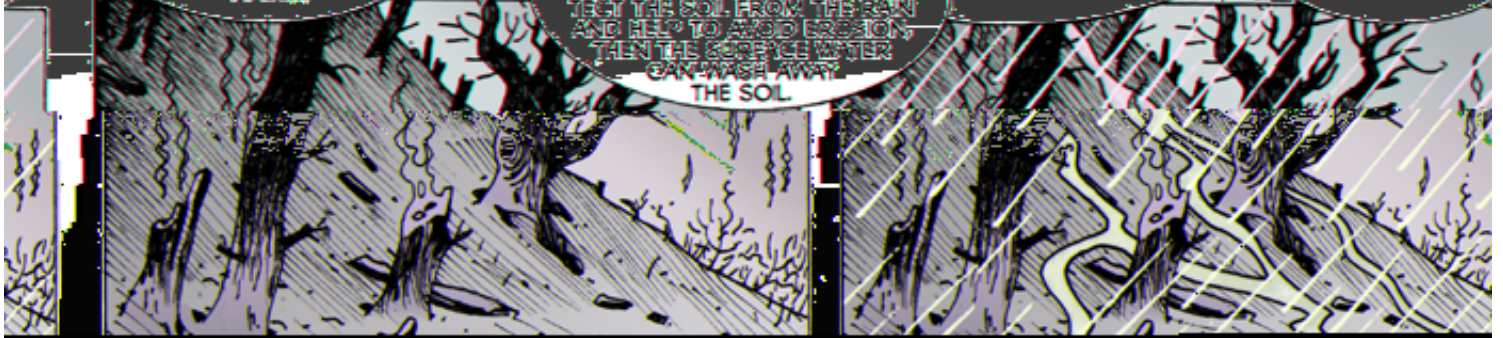
WHAT'S MORE WITHOUT PLANTS WEAT WOULD WE EAT?

...SILVACULTURE AND BESIDES THEY ARE CONSTANTLY BEING DAMAGED FOR EXAMPLE BY FOREST FIRES...

...GET WHEN PLANTS ARE BURNED THEY CAN NO LONGER HOLD THE SOIL IN PLACE WITH THEIR ROOTS AND THEY CANNOT PROTECT THE SOIL FROM THE RAIN AND HELP TO AVOID EROSION, THEN THE SOFTICE WATER CAN WASH AWAY THE SOL.

...VEGETATION LAYER SOIL IS WASHED AWAY BY WATER AND CAN DISAPPEAR.

WHAT'S MORE WITHOUT PLANTS WEAT WOULD WE EAT?



EROSION ISN'T THE ONLY THING THAT CAN DESTROY THE SOIL.

IT ALSO DISAPPEARS UNDER BUILDINGS, ROADS...

BUT PEOPLE NEED HOUSES AND ROADS TO LIVE. PLANNERS MUST...

YES, BUT TOWN PLANNING CAN BE ORGANIZED TO PRODUCE AS LITTLE DAMAGE AS POSSIBLE.

NOW, FOR EXAMPLE, IT'S COMPULSORY TO REMOVE THE TOPSOIL LAYER BEFORE ANY CONSTRUCTION WORK AND REUSE IT LATER IN PARKS AND GARDENS.

SO THE SOIL IS NOT BURIED UNDERNEATH THE CEMENT!

THE FERTILIZATION OF FARMLAND ALSO HAS TO BE MANAGED.

WE MUST AVOID THE EXCESSIVE USE OF FERTILIZERS; MANURE OR ANIMAL SLURRY MUST BE USED AT LEAST 35 TO 50 METRES AWAY FROM ANY SPRINGS OR WELLS. IF THERE IS A RIVER OR STREAM NEARBY, WE HAVE TO KEEP 10 METRES AWAY FROM ITS BANK.

WE WANT CLEAN WATER!

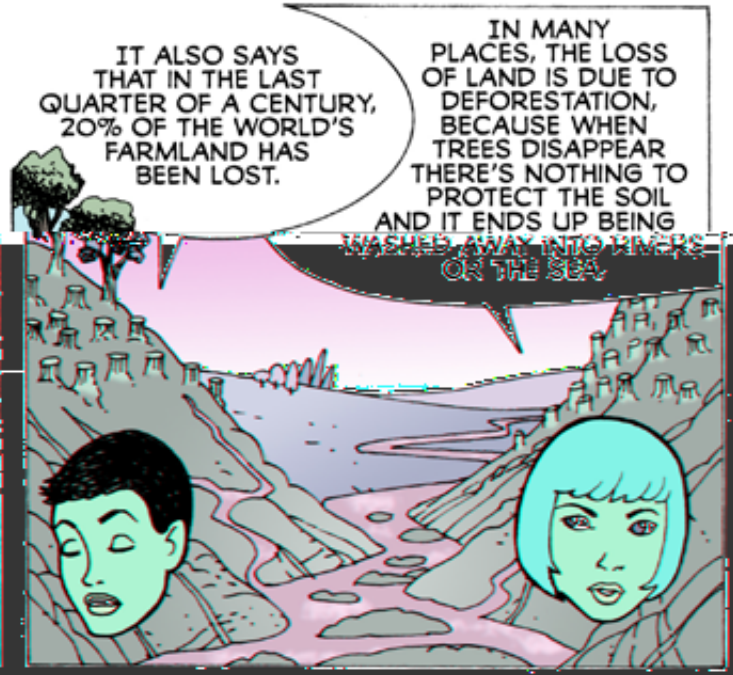
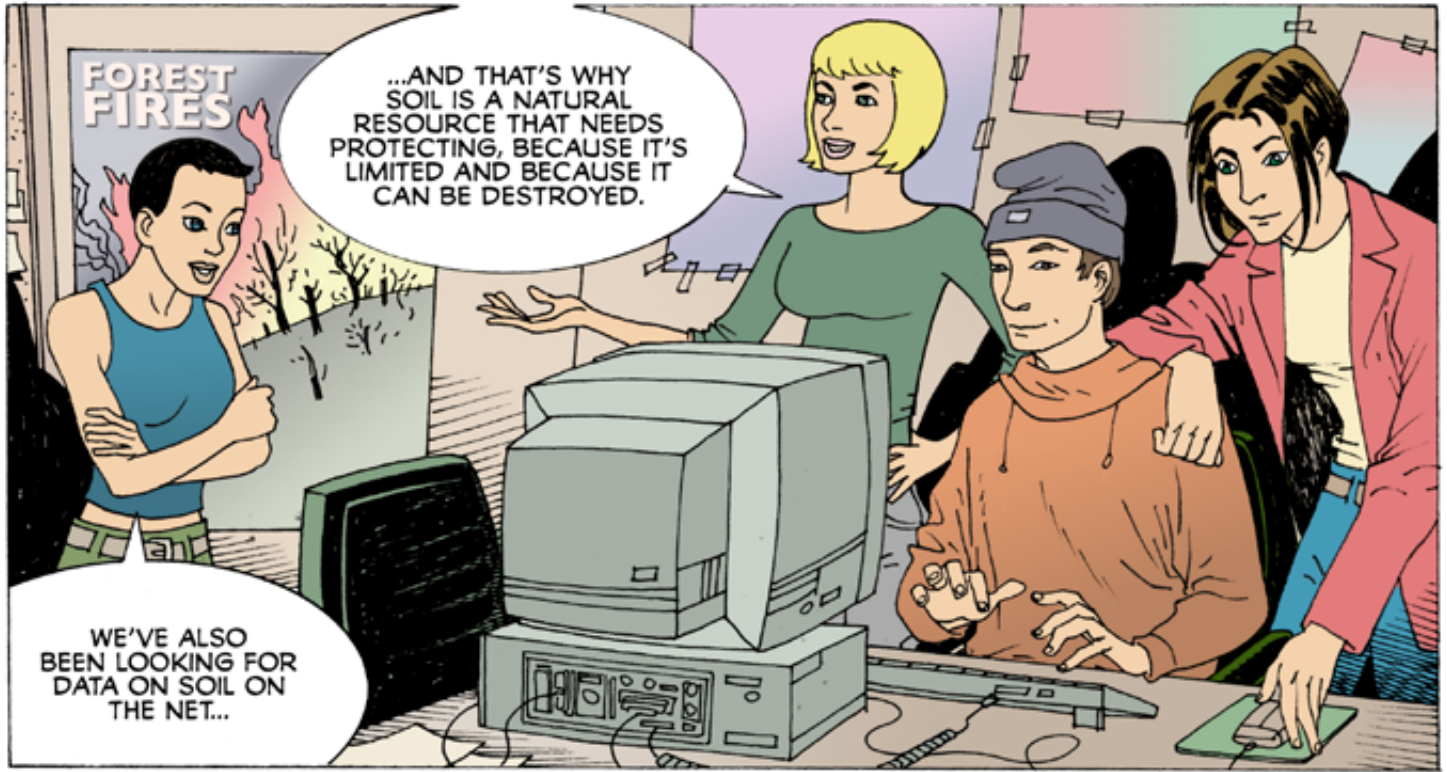
WE HAVE TO AVOID THE USE OF INSECTICIDES OR HERBICIDES UNLESS IT'S ABSOLUTELY NECESSARY.

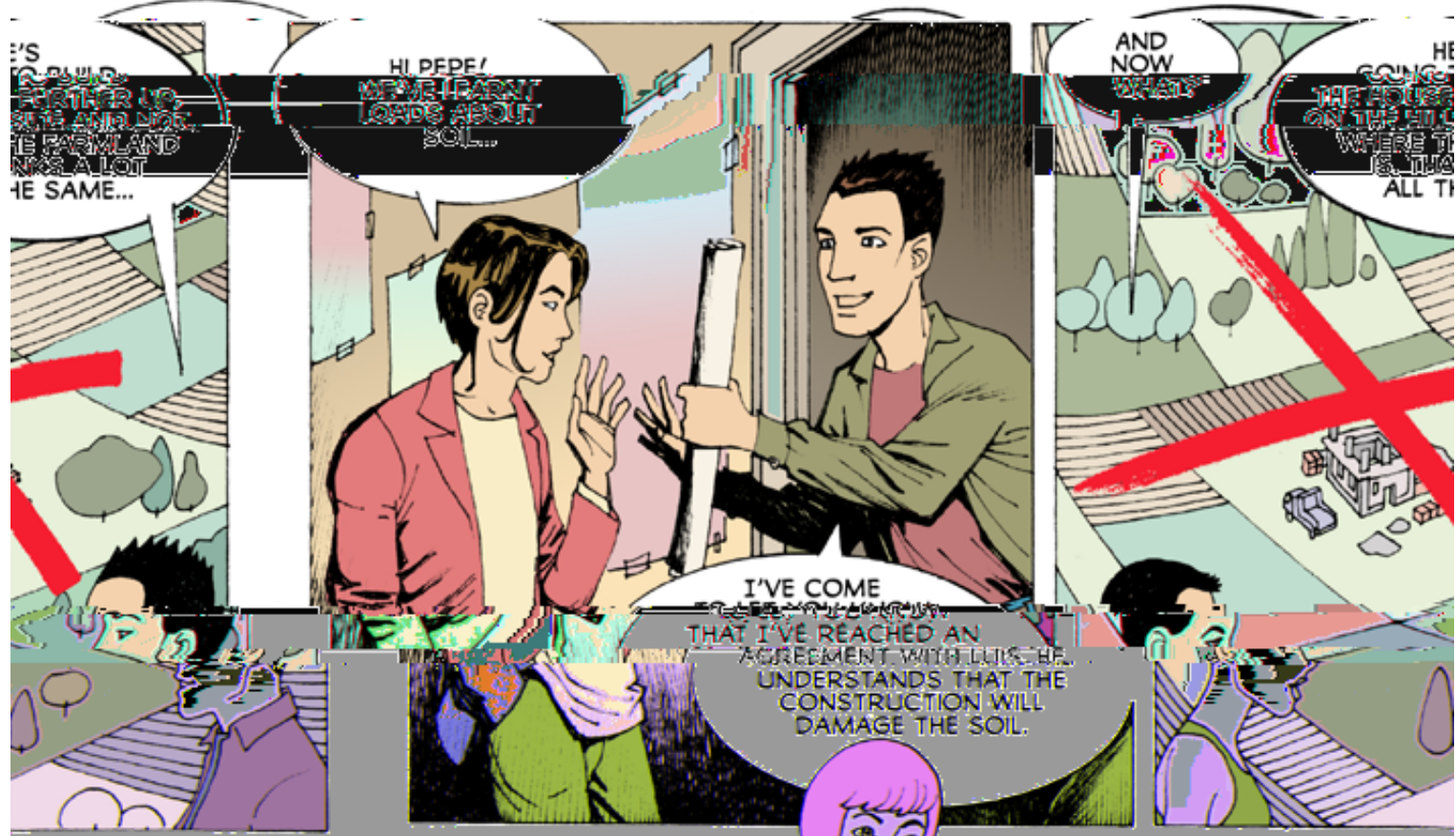
THEY KILL WHAT THEY'RE SUPPOSED TO. AND EVERYTHING ELSE AND THEY TASTE DISGUSTING! UGH!

INSECTICIDES THEY CAN PASS ON TO BIRDS AND OTHER ANIMALS AND PUT THEM IN DANGER. IT'S BETTER TO USE BIOLOGICAL CONTROL METHODS.

ABOVE ALL, WE CANNOT RUIN THE SOIL WITH UNCONTROLLED RUBBISH DUMPS.

AND WE MUST PLAN WASTE LANDFILLS SO THAT TOXIC PRODUCTS DON'T FILTER THROUGH AND POLLUTE THE SOIL AND WATER.





IT'S
TO BUILD
BROTHER LO
THE AIR AND NO
THE FARMLAND
IS A LOT
THE SAME...

HI PEPE!
WE'VE HAD
LOADS ABOUT
SOIL...

AND
NOW
WHAT?

HE
GOING
THE HOUSE
ON THE HILL
WHERE THE
IS THE
ALL TI

I'VE COME
TO SEE YOU ABOUT
THAT I'VE REACHED AN
AGREEMENT WITH LUIS. HE
UNDERSTANDS THAT THE
CONSTRUCTION WILL
DAMAGE THE SOIL.



YOU
CAN'T LIVE
WITHOUT YOUR
COMPUTER!



NOW WE'RE THE
ONES WHO WANT
PEOPLE TO LEARN
ALL ABOUT THE SOIL
BECAUSE THEY KNOW
SO LITTLE.

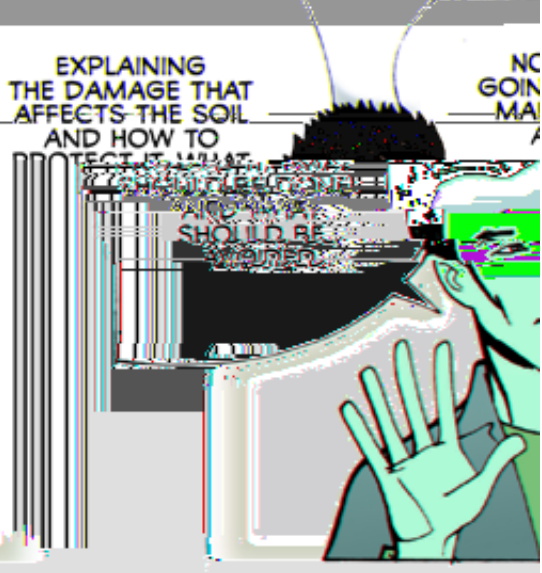


WE COULD
ORGANIZE SOME
TALKS. I'LL DESIGN
THE POSTERS!



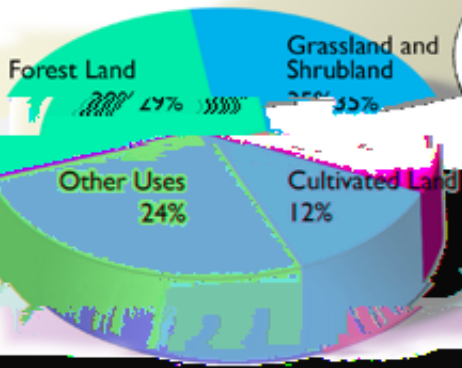
HOW MIGUEL IS
GOING TO PROPOSE
BY MAKING A COMIC
ABOUT SOIL.

AND



EXPLAINING
THE DAMAGE THAT
AFFECTS THE SOIL
AND HOW TO
PROTECT IT. WHAT
SHOULD BE
DISTRIBUTED

NO
GOING
MAKING



IN THE WORLD FARMLAND IS SCARCE. ONLY HALF OF IT CAN BE USED FOR AGRICULTURE AND CROPS ARE THE BASIS OF FOOD PRODUCTION.

BUT THERE'S STILL A LOT OF SOIL IN THE WORLD THAT ISN'T BEING PUT TO GOOD USE, ISN'T THERE?

NOT AT ALL! 8% OF THE WORLD'S SOIL IS ALREADY BEING CULTIVATED AND IT'S HARDER AND HARDER TO FIND SOIL THAT IS APPROPRIATE FOR FARMING.

THAT'S WHY IT'S SO IMPORTANT TO CONSERVE THE GOOD QUALITY OF THE SOIL WE DO HAVE.

IT HELPS TO KEEP SOILS HEALTHY AND CLEAN TO AVOID FIRES, AND WHEN THE UNDERGROWTH IS CUT, IT'S BETTER TO SHRED IT AND LEAVE THE FOREST REMAINS ON THE GROUND, NOT BURN THEM.

DEFORESTATION SHOULD BE DONE CAREFULLY SO AS NOT TO DAMAGE THE SOIL.

THIS MAKES A BETTER USE OF NUTRIENTS.

TREES THAT GROW QUICKLY, LIKE PINE AND EUCALYPTUS TREES, SHOULDN'T BE PLANTED TOO CLOSE TOGETHER OR CUT DOWN AT THE

ONE OF THE BEST THINGS WE CAN DO FOR OUR SOILS IS TO MAINTAIN THE COVER OF VEGETATION. BECAUSE THE ROOTS OF TREES AND PLANTS PREVENT SOIL FROM BEING WASHED AWAY BY WATER.

MAINTAINING VEGETATION IS IMPORTANT EVERYWHERE, ESPECIALLY WHERE RIVERS RISE.

ON THE OTHER HAND, WITHOUT VEGETATION THE SOIL RUNS THE RISK OF BEING WASHED AWAY BY EROSION.

