

NANOTECHNOLOGY IN RURAL AREAS

MINISTÉRIO
DO TRABALHO E EMPREGO



FUNDACENTRO
FUNDAÇÃO JOSÉ DUPRAT PRUBEREDO
DE SEGURANÇA E MEDICINA DO TRABALHO

SERIES
NANOTECHNOLOGY IN
COMICS

4



WILLIAMGENE

NANOTECHNOLOGY

IN RURAL AREAS

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NANOTECHNOLOGY IN RURAL AREAS

SÉRIES
NANOTECHNOLOGY IN
COMICS 

SÃO PAULO

MINISTÉRIO
DO TRABALHO E EMPREGO



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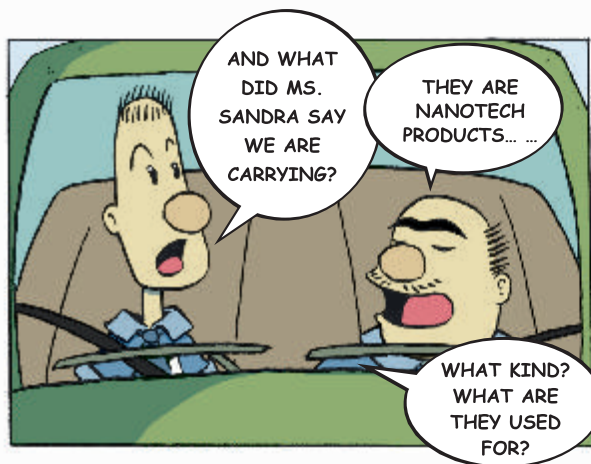
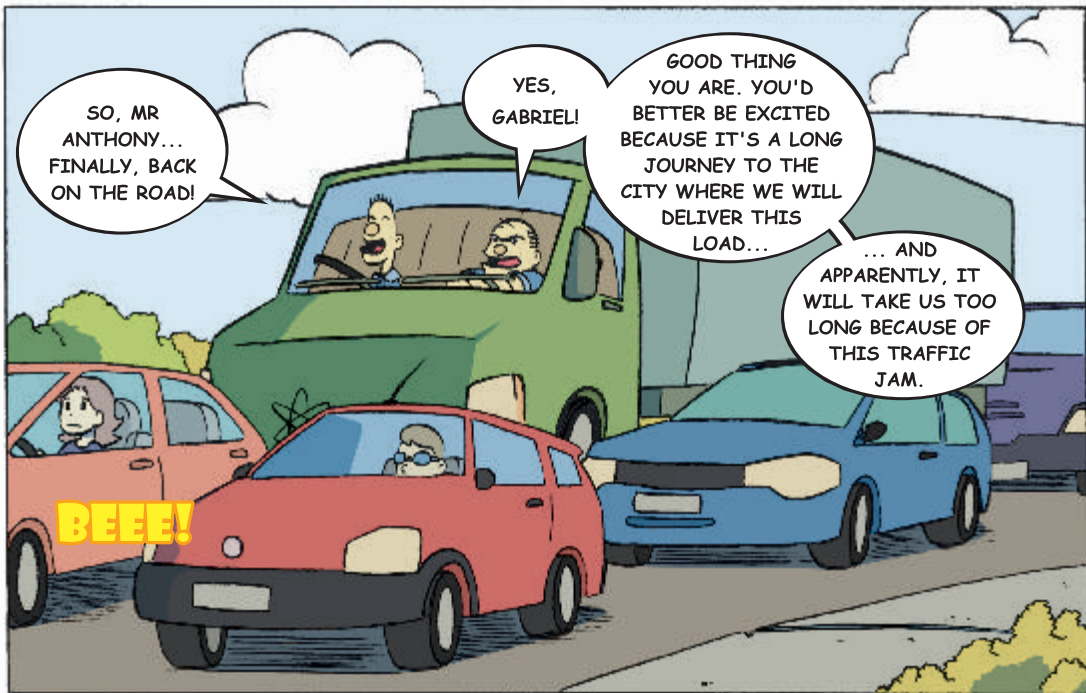
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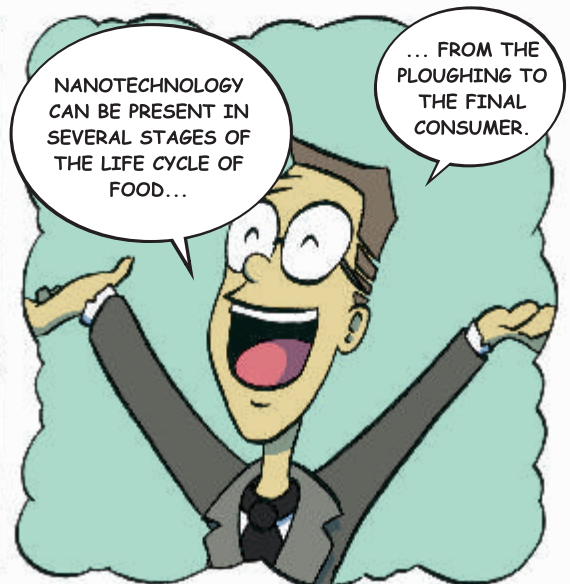
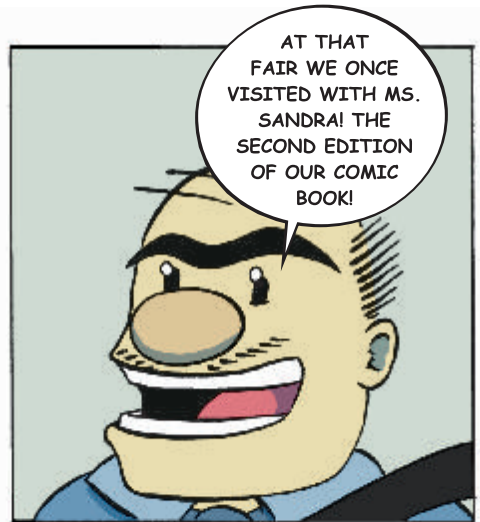
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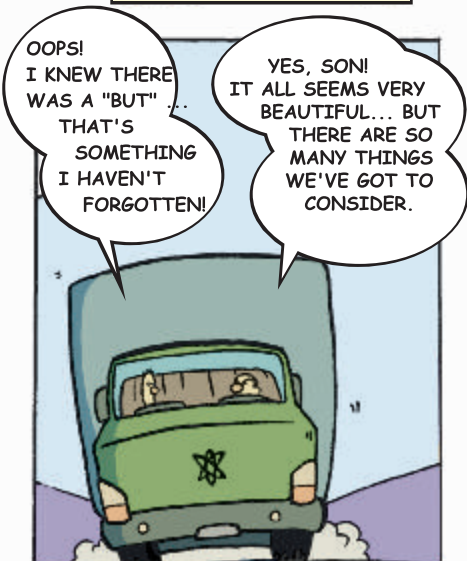
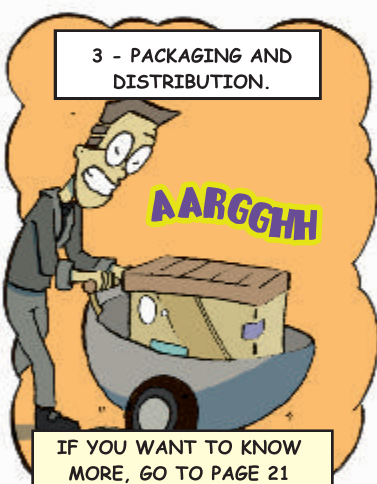
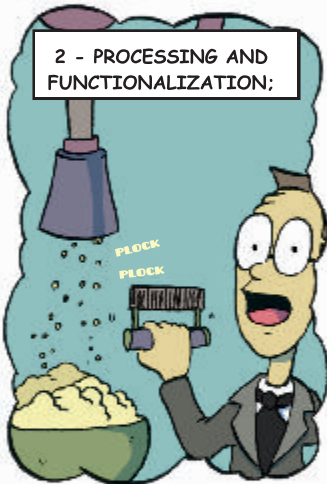
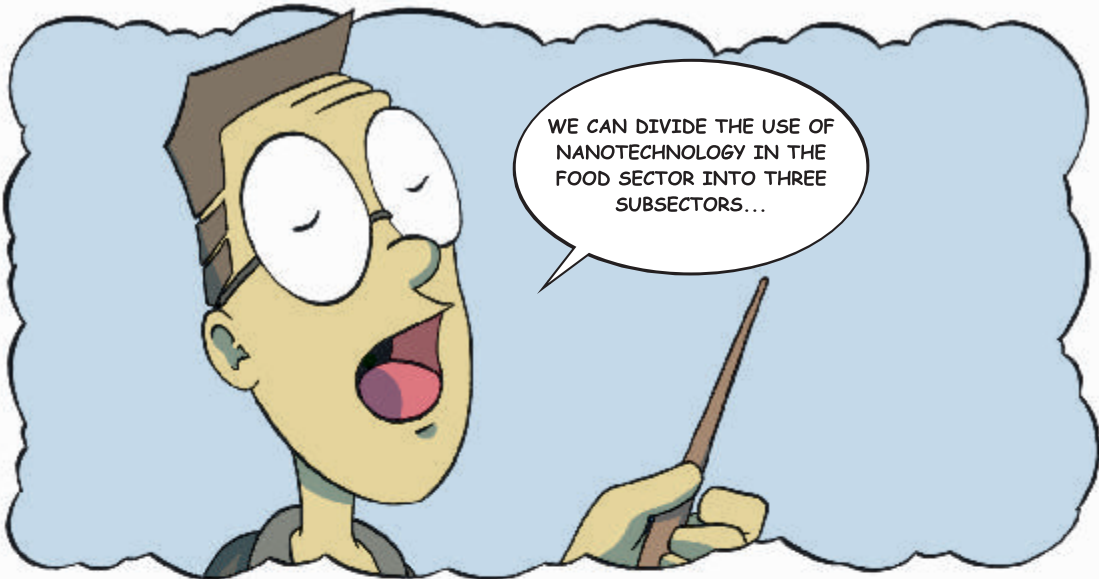
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Sécurité et d'Hygiène du Travail"
CDU - Universal Decimal Classification

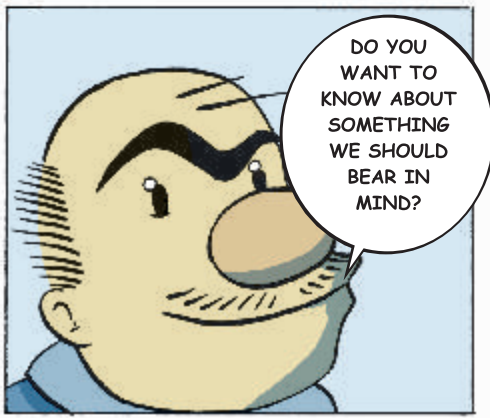
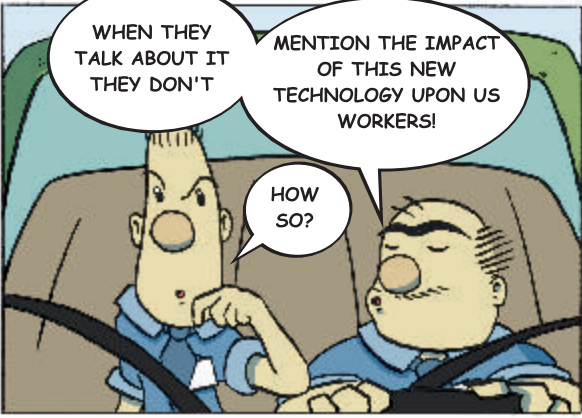
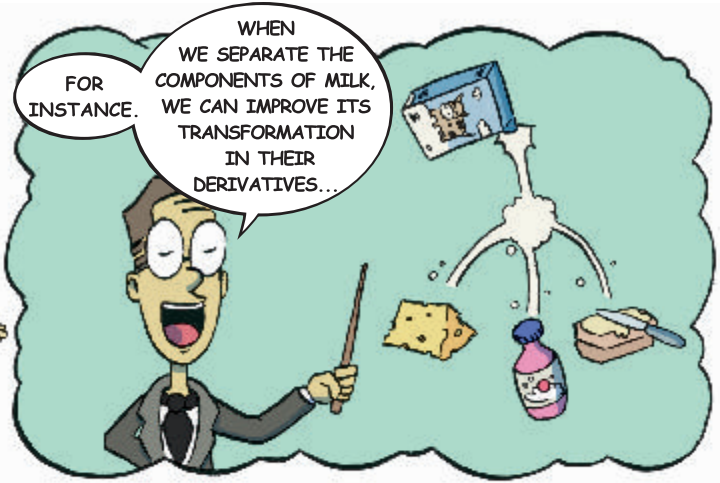
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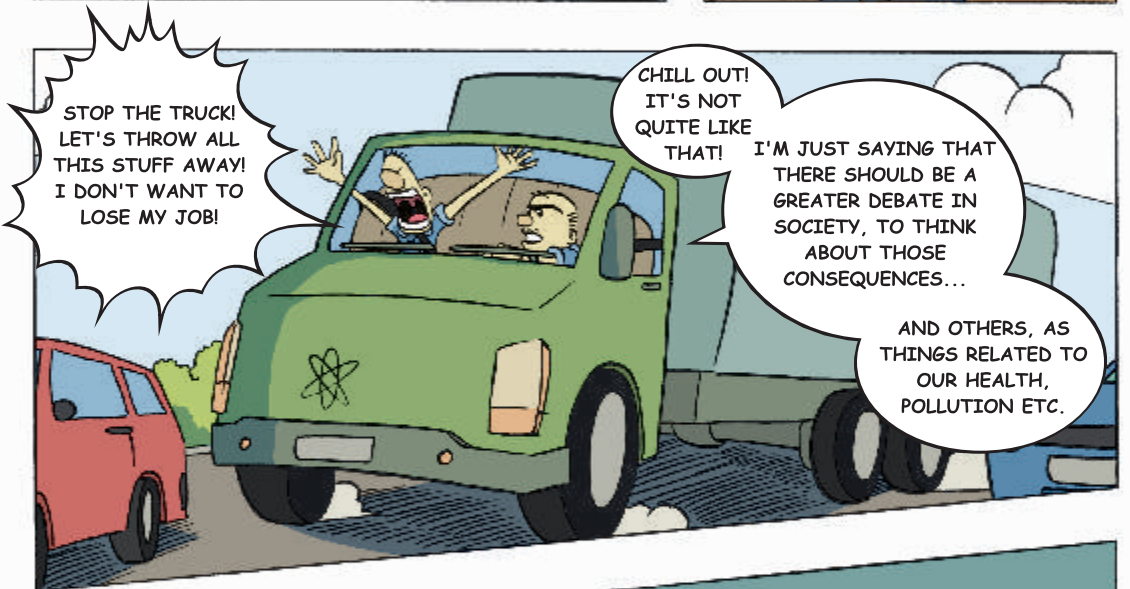
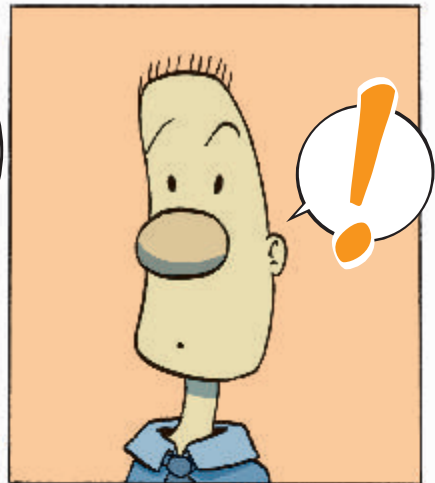
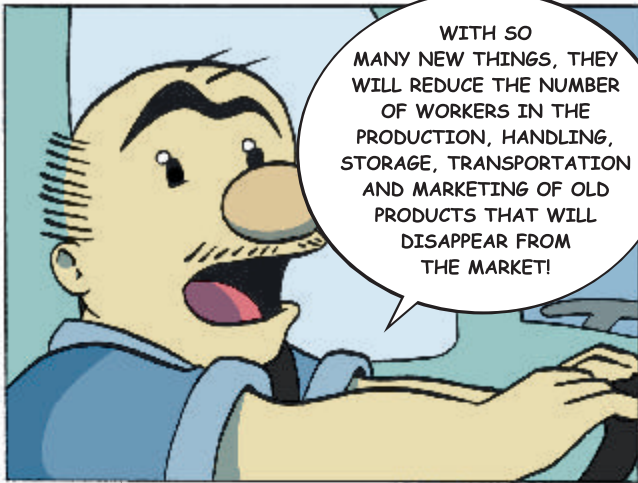
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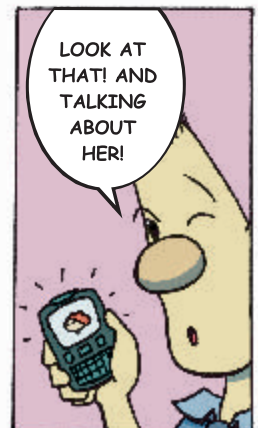
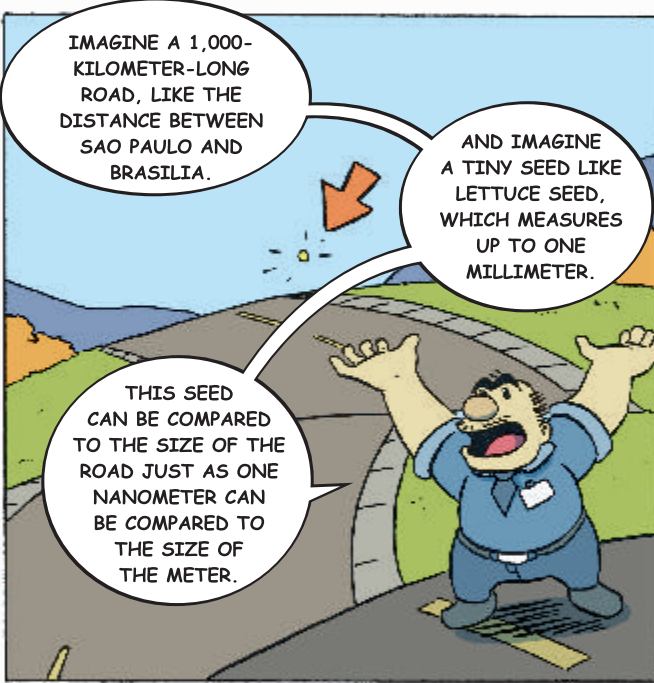
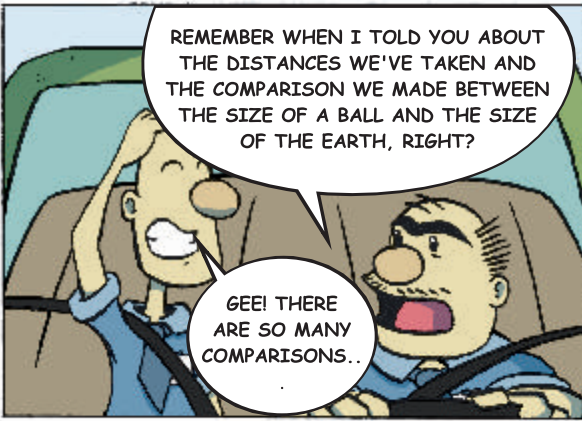








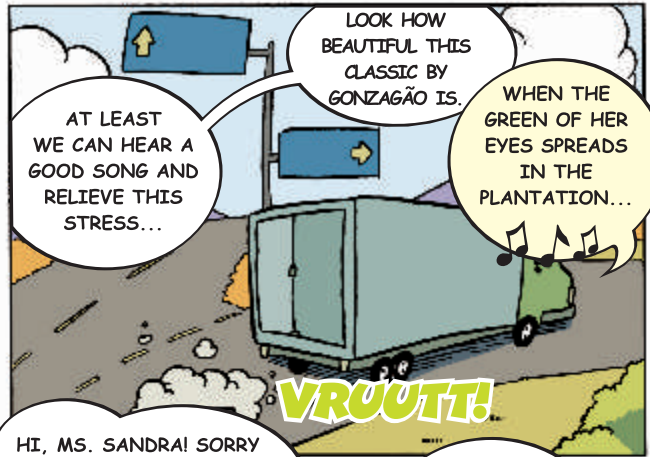






WHERE ARE YOU? YOU ARE

I WILL TEXT YOU THE NEW ADDRESS YOU'RE SUPPOSED TO COME TO!



AT LEAST WE CAN HEAR A GOOD SONG AND RELIEVE THIS STRESS...

LOOK HOW BEAUTIFUL THIS CLASSIC BY GONZAGÃO IS.

WHEN THE GREEN OF HER EYES SPREADS IN THE PLANTATION...

VRUUTT!



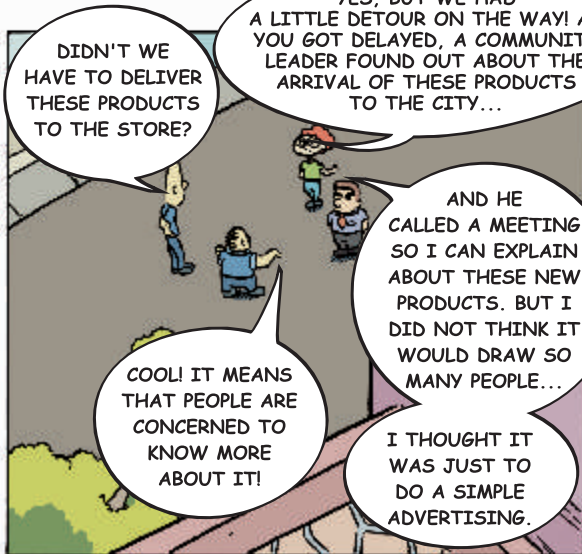
HI, MS. SANDRA! SORRY FOR THE DELAY, WE WERE STUCK IN THE TRAFFIC

: MR ANTHONY, GABRIEL, THIS IS DOCTOR JORGE. HE WORKS FOR AGROX, THE COMPANY THAT HIRED US FOR SHIPPING.



YOUR DELAY WILL COST US THIS DIFFICULT MEETING HERE!

WE'RE PLEASED TO MEET YOU TOO.



DIDN'T WE HAVE TO DELIVER THESE PRODUCTS TO THE STORE?

YES, BUT WE HAD A LITTLE DETOUR ON THE WAY! AS YOU GOT DELAYED, A COMMUNITY LEADER FOUND OUT ABOUT THE ARRIVAL OF THESE PRODUCTS TO THE CITY...

AND HE CALLED A MEETING SO I CAN EXPLAIN ABOUT THESE NEW PRODUCTS. BUT I DID NOT THINK IT WOULD DRAW SO MANY PEOPLE...

COOL! IT MEANS THAT PEOPLE ARE CONCERNED TO KNOW MORE ABOUT IT!

I THOUGHT IT WAS JUST TO DO A SIMPLE ADVERTISING.



COOL, MR. ANTHONY?!

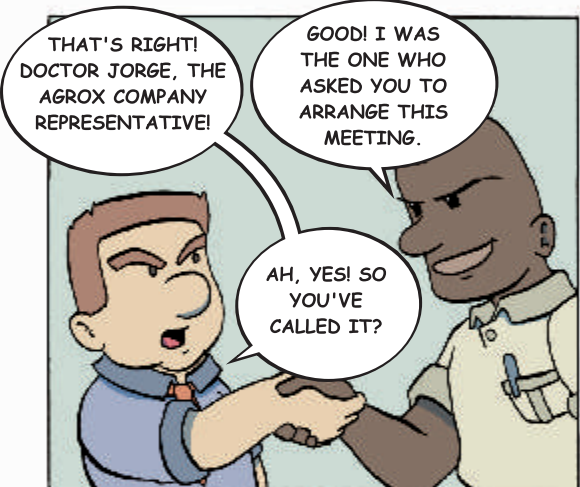
IT'S NOT COOL AT ALL! DO YOU WANT TO RUIN OUR MOST PROFITABLE BUSINESS?

IH, MS. SANDRA... YOU HAVE SEEN NOTHING...



HELLO, FELLOWS!
I'M FRANCISCO, BUT
YOU CAN CALL ME
FRANK, AND THIS IS
DAISY. ARE YOU
JORGE?

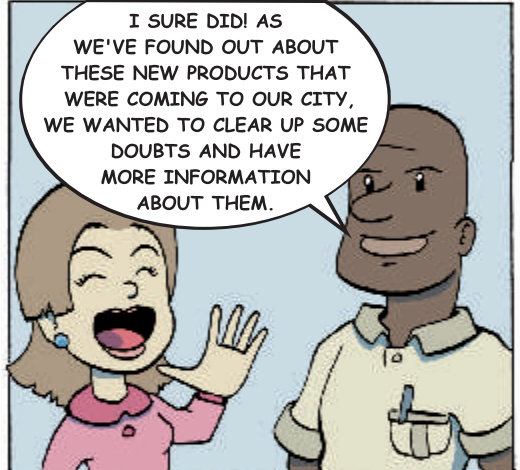
HELLO!



THAT'S RIGHT!
DOCTOR JORGE, THE
AGROX COMPANY
REPRESENTATIVE!

GOOD! I WAS
THE ONE WHO
ASKED YOU TO
ARRANGE THIS
MEETING.

AH, YES! SO
YOU'VE
CALLED IT?

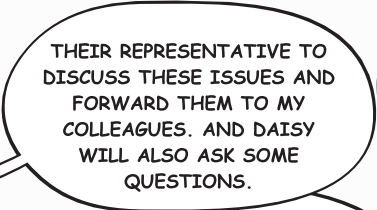


I SURE DID! AS
WE'VE FOUND OUT ABOUT
THESE NEW PRODUCTS THAT
WERE COMING TO OUR CITY,
WE WANTED TO CLEAR UP SOME
DOUBTS AND HAVE
MORE INFORMATION
ABOUT THEM.



WE ARE THE
UNION OF FARM
WORKERS. HERE THERE
ARE WORKERS FROM LARGE
AND SMALL PROPERTIES,
WHO USE DIFFERENT
WAYS TO CONTROL
PESTS IN CROPS.
I WAS ELECTED

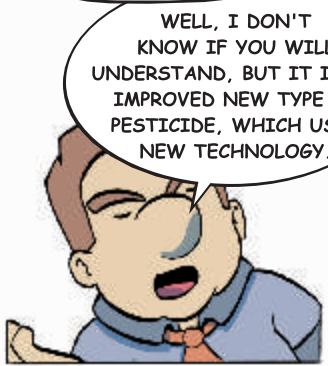
AND WHY DO
WE HAVE TO
TALK ABOUT IT
WITH YOU?



THEIR REPRESENTATIVE TO
DISCUSS THESE ISSUES AND
FORWARD THEM TO MY
COLLEAGUES. AND DAISY
WILL ALSO ASK SOME
QUESTIONS.



HUMM,
TAKE A LOOK
AT THE SELLER!
HE WANTS TO
FOOL FRANK.
WHAT NEXT?



WELL, I DON'T
KNOW IF YOU WILL
UNDERSTAND, BUT IT IS AN
IMPROVED NEW TYPE OF
PESTICIDE, WHICH USES
NEW TECHNOLOGY.



IT IS NANOTECHNOLOGY, ISN'T IT?



LOOK AT THAT! HE'S LIKE ME! I HE ALREADY KNOWS WHAT NANO IS!

YEAH. I READ SOME ARTICLES ABOUT IT AT OUR UNION.



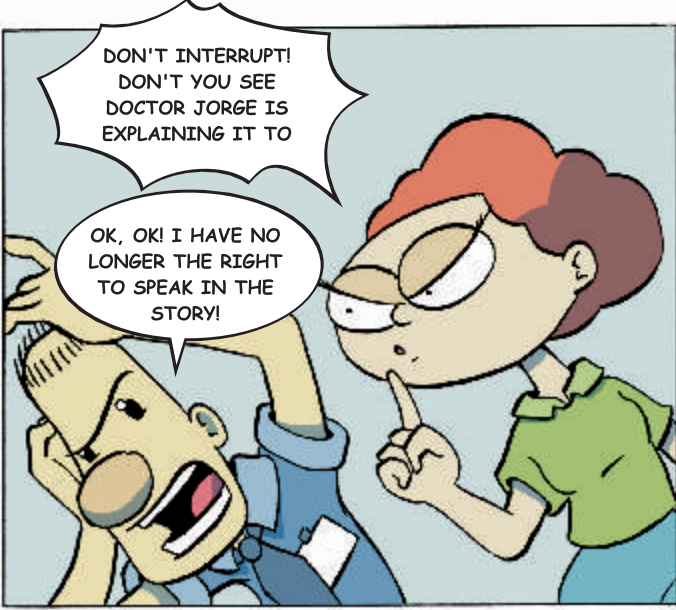
SINCE YOU READ, YOU MUST ALREADY KNOW SOME OF THE BENEFITS THAT THE NEW TECHNOLOGY WILL BRING TO THE FIELD!

DO YOU KNOW THAT THE AGRICULTURAL INDUSTRY IS THE SECOND LARGEST USER OF NANOTECHNOLOGY IN THE WORLD?

AND WHY HAS THIS BEEN HAPPENING? I ASK YOU.

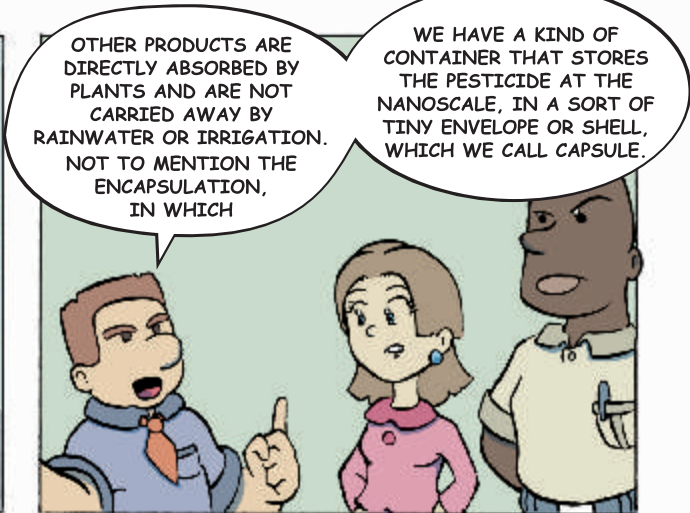
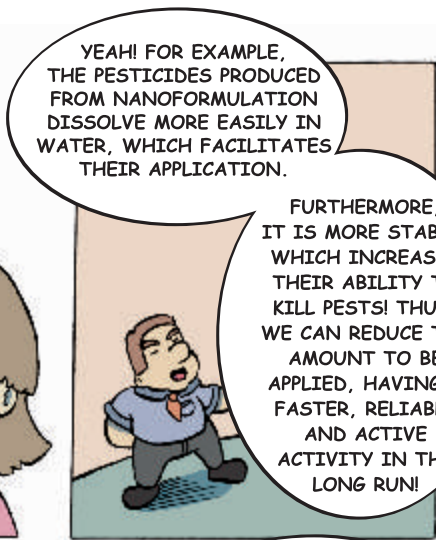
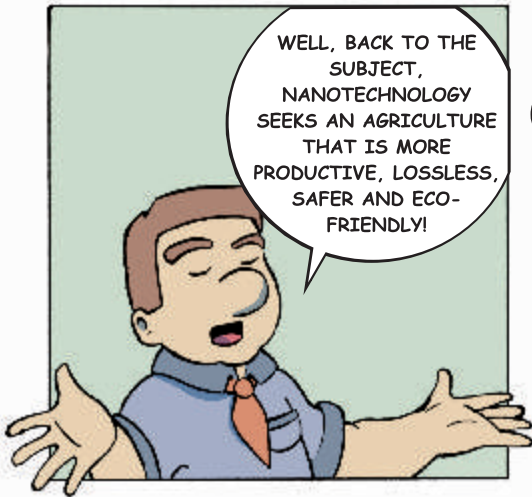


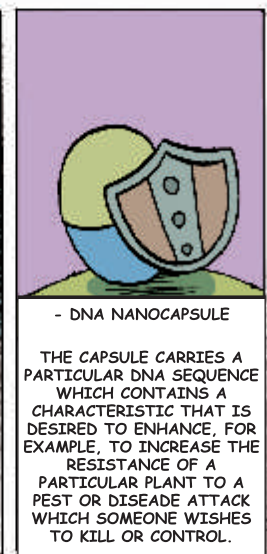
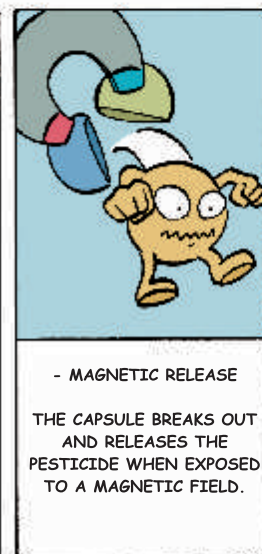
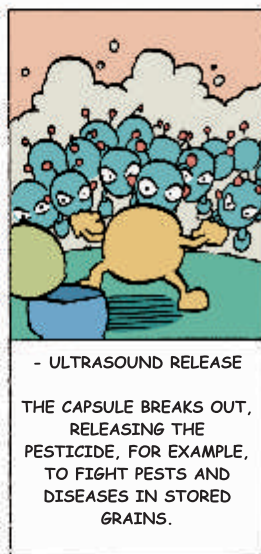
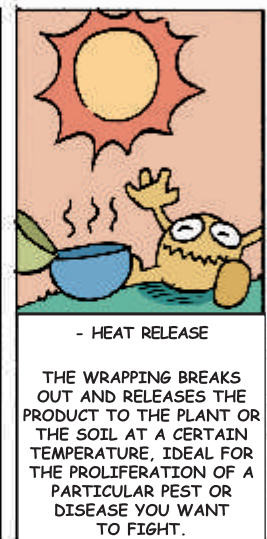
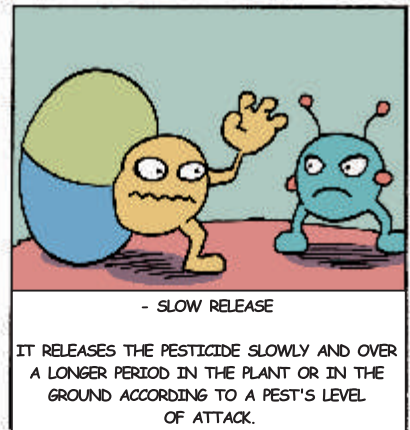
THAT IS THE KIND OF QUESTION THAT I'VE BEEN ASKING MYSELF IN THE THREE EDITIONS OF THIS COMIC BOOK!

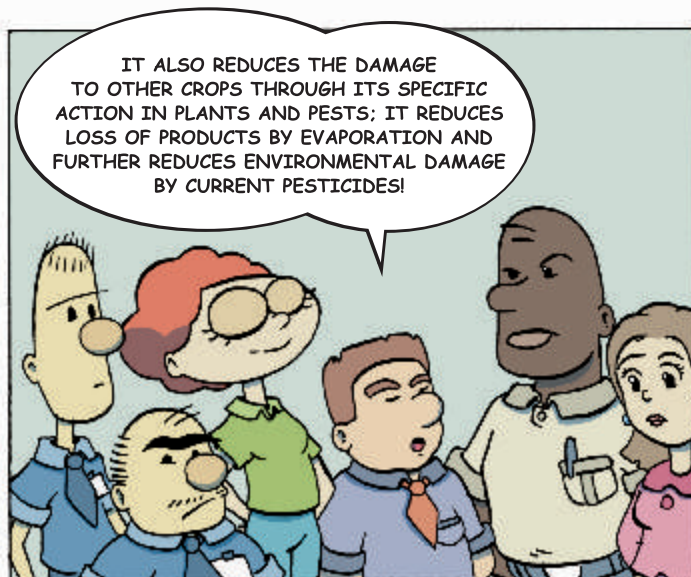
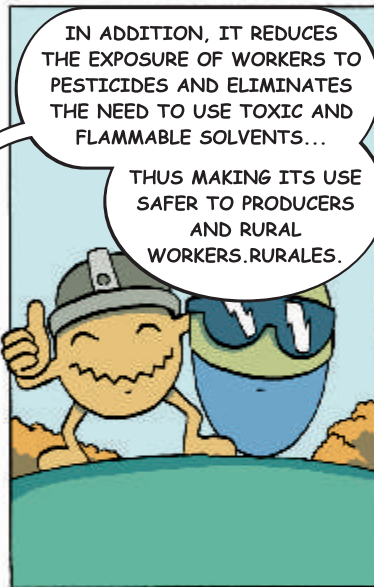


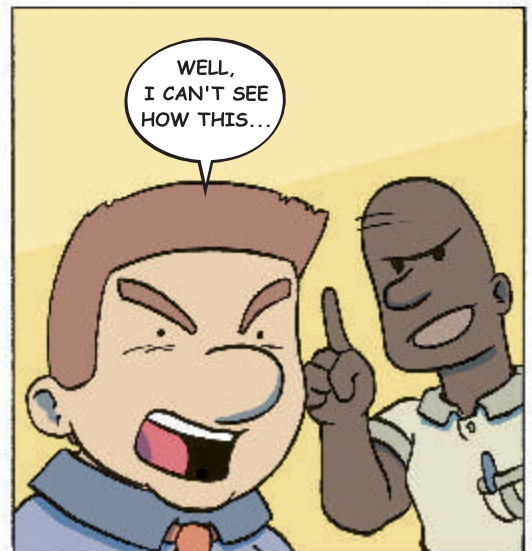
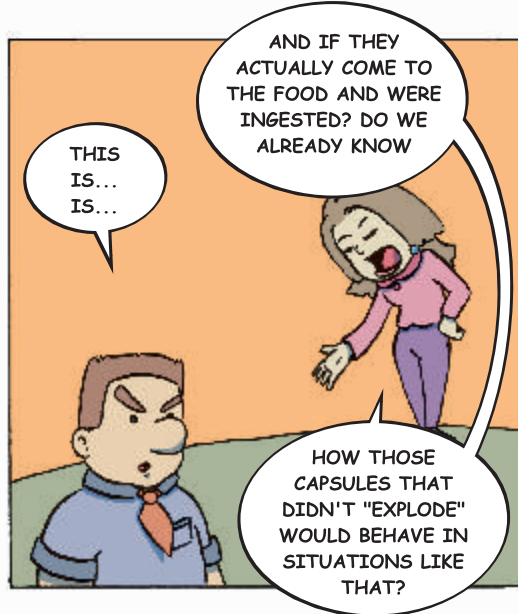
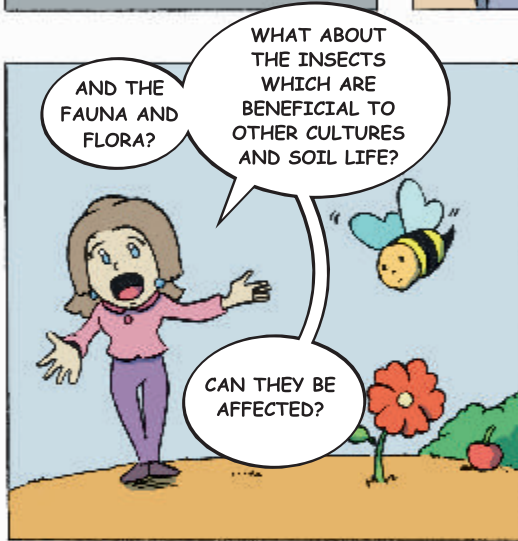
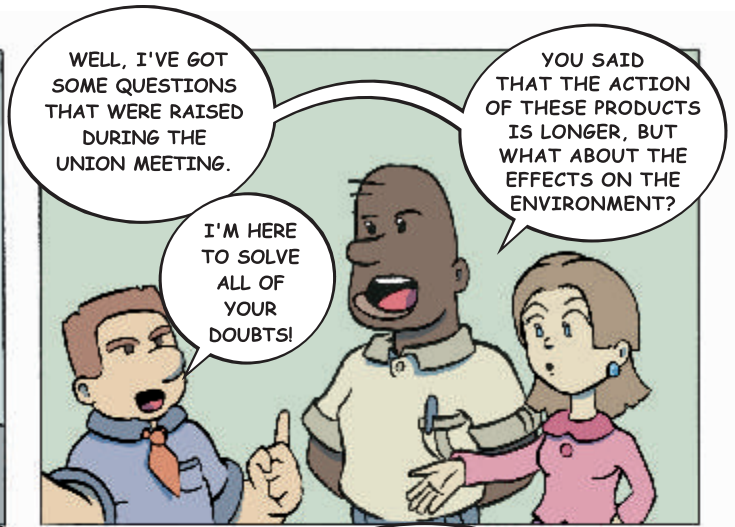
DON'T INTERRUPT! DON'T YOU SEE DOCTOR JORGE IS EXPLAINING IT TO

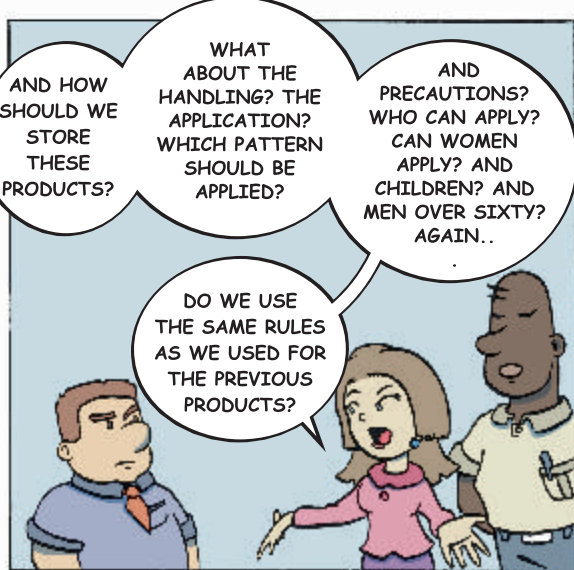
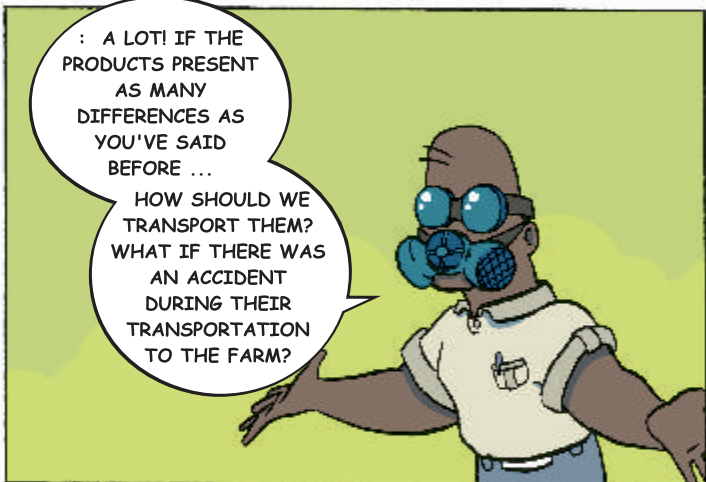
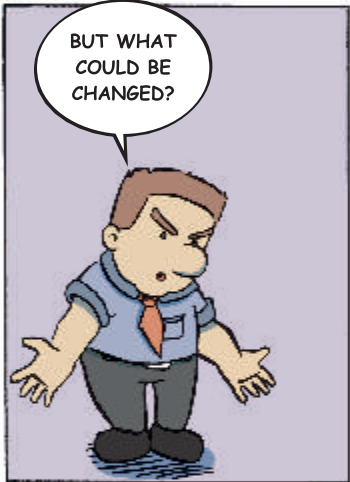
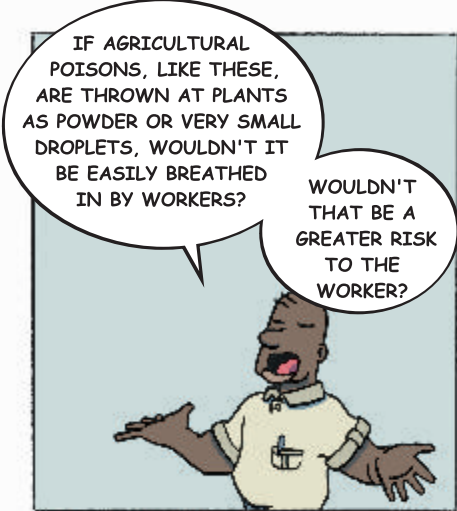
OK, OK! I HAVE NO LONGER THE RIGHT TO SPEAK IN THE STORY!











WELL ...
LOOK ... THERE
IS NO REASON
FOR YOU TO
WORRY ABOUT
THESE

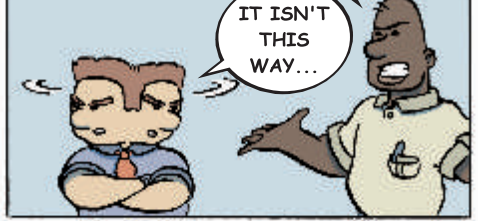


AS THERE
IS NO REASON
TO STOP
WORRYING,
RIGHT?



WHAT WILL HAPPEN
TO THESE TINY LITTLE
PARTICLES WHEN THE
PACKAGING IS DISCARDED? WILL
THEY REMAIN IN THE SOIL, AIR,
WATER, GROUND WATER,
THE PLANT?

IT ISN'T
THIS
WAY...



OF COURSE IT
IS! YOU KNOW
WHAT IS STILL
MISSING?



WHAT? WHAT?
SAY IT RIGHT NOW
BECAUSE THE NEXT
PAGE IS THE
LAST ONE.



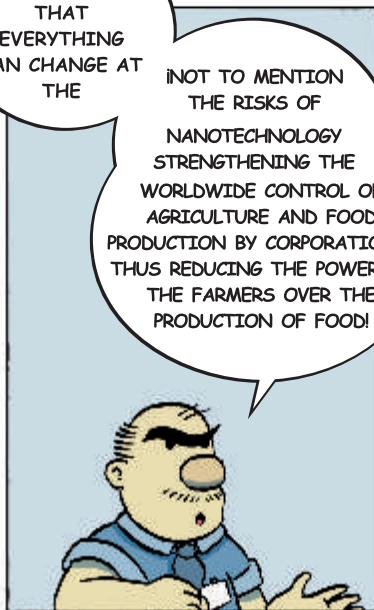
RESEARCH TO
KNOW THE REAL
EFFECTS OF THESE
PRODUCTS!



SO FAR, THE
GOVERNMENTS HAVE
NOT REQUIRED FULL
TESTING OF TOXIC
HAZARDS ...

THIS IS
ABSURD! JUST
BECAUSE THEY
ARE THE SAME
CHEMICALS OF THE
OLD FORMULATION,
DON'T THEY NEED
TO UNDERGO
FURTHER TESTS
TO BE
APPROVED?

YOU FORGET
THAT
EVERYTHING
CAN CHANGE AT
THE



NOT TO MENTION
THE RISKS OF
NANOTECHNOLOGY
STRENGTHENING THE
WORLDWIDE CONTROL OF
AGRICULTURE AND FOOD
PRODUCTION BY CORPORATIONS,
THUS REDUCING THE POWER OF
THE FARMERS OVER THE
PRODUCTION OF FOOD!

IF THIS AGITATOR WAS
NOT BAD ENOUGH, NOW
YOUR EMPLOYEE WILL
ALSO BE AGAINST MY
COMPANY?

SO, UNTIL THEY ARE NOT
CONVINCED TO BUY OUR
PRODUCT, WE WILL NOT
CLOSE THE DEAL WITH
YOUR CARRIER!



WELL, I SUGGEST THAT NEXT TIME YOU SHOW UP HERE YOU BRING MORE INFORMATION ABOUT THIS NEW PRODUCT SO WE CAN DISCUSS AND CLARIFY OUR DOUBTS...

OF COURSE...
OF COURSE...

I DON'T BELIEVE IT! LOOK WHAT YOU DID AGAIN!

NO NEED TO GET MAD AT THEM, MADAM!

YOU KNOW WHAT? I LIKED YOUR DRIVER AND I WANT TO HIRE YOUR COMPANY TO TRANSPORT OUR PRODUCTION!

OOPS! IT WILL BE A PLEASURE TO WORK WITH YOU!

AND DO YOU HAVE SOME TIME NOW? I'D LIKE TO SHOW SOME EXPERIENCES WE HAVE HERE IN THE COMMUNITY WITH ORGANIC AGRICULTURE AND AGROECOLOGY!

OF COURSE!
OF COURSE! IN THE CITY PEOPLE TALK ABOUT ORGANIC AGRICULTURE AND AGROECOLOGY AND I WANT TO KNOW WHAT IT IS AND HOW TO PRODUCE

IT'S IMPORTANT TO SAY THAT IN THIS EDITION YOU ALMOST DIDN'T NEED TO QUESTION ANYTHING... THIS WAS IN CHARGE OF MR. FRANCISCO AND MS. DAISY!

AS THEY SAY: THE WORST "POISONS" COME IN THE SMALLEST PACKAGES!

KNOW MORE

1 - AGRICULTURAL PRODUCTION MEANS: PRODUCTION OF FOOD FROM PLANT CULTIVATION AND BREEDING.

ITS APPLICATIONS ARE:

- SENSORS AND DEVICES TO MONITOR THE ENVIRONMENTAL CONDITIONS AND THE HEALTH OF PLANTS AND ANIMALS.
- CONTROL OF DISEASES AND PESTS WITH NEW RELEASE SYSTEMS OF PESTICIDES.
- CONTROL OF WATER AND NUTRIENTS.
- GENETIC ENGINEERING OF PLANTS AND ANIMALS WITH THE AIM OF IMPROVING PRODUCTIVITY.
- AGRICULTURE FOR PRODUCTION OF NANOMATERIALS.

2 - PROCESSING AND FUNCTIONALIZATION MEAN: PROCESSING OF AGRICULTURAL PRODUCTS INTO PRODUCTS THAT GO TO THE CONSUMER THROUGH:

- MECHANISMS TO ENSURE QUALITY CONTROL.
- TECHNOLOGY TO MAKE THE MODIFICATION OF THE FOOD IN THE INDUSTRIES, FOR EXAMPLE, PLACING A PROTECTIVE NANOLAYER ON APPLE SO THAT IT LASTS LONGER.
- PRODUCING FUNCTIONAL FOODS THAT ARE AT THE SAME TIME FOOD AND DRUG OR FOOD SUPPLEMENT.

3 -WHEN WE MENTION PACKAGING AND DISTRIBUTION, WE MEAN THE NANOPROCESSES CREATED TO PACK FRESH AND PROCESSED FOODS, BESIDES THE PROCEDURES AND SYSTEMS TO CONTROL THE DISTRIBUTION OF FOOD, INCLUDING ITEMS THAT ALLOW US TO KNOW IF THEY ARE AUTHENTIC, WHERE THEY COME FROM AND WHERE THEY GO TO. SO THAT, THE PERSON WHO PROCESSES THE FOOD KNOWS WHAT YOU HAVE BOUGHT, WHERE, HOW LONG IT HAS STAYED IN YOUR HOUSE AND EVEN WHERE THE LEFTOVERS WERE THROWN AWAY.

NANOTECHNOLOGY IN RURAL AREAS

THIS COMIC BOOK IS A PRODUCT OF THE PROJECT "IMPACTS OF NANOTECHNOLOGY UPON THE HEALTH OF WORKERS AND THE ENVIRONMENT," WHICH BEGAN IN 2007 AT FUNDACENTRO.

THIS PROJECT IS COORDINATED BY ARLINE SYDNEIA ABEL ARCURI AND IS DEVELOPED IN PARTNERSHIP WITH RENANOSOMA (RESEARCH NETWORK IN NANOTECHNOLOGY, SOCIETY AND ENVIRONMENT), IIEP (EXCHANGE, INFORMATION, STUDIES AND RESEARCHES), DIESAT (INTER-UNION STUDIES AND RESEARCH DEPARTMENT OF HEALTH AND WORK ENVIRONMENTS), DIEESE (INTER-UNION STUDIES DEPARTMENT OF STATISTICS AND SOCIOECONOMIC), OSASCO STEELWORKERS UNION, ABC CHEMICAL WORKERS UNION, THE SOCIAL OBSERVATORY INSTITUTE, ENSP/FIOCRUZ (NATIONAL SCHOOL OF PUBLIC HEALTH/OSWALDO CRUZ FOUNDATION), SRTE/SP - BRAZIL (REGIONAL SUPERINTENDENCY OF LABOUR AND EMPLOYMENT) AND IT HAS LEILA NADIM ZIDAN, AS COLLABORATOR.



NANOTECHNOLOGY IN RURAL AREAS

THIS TEXT, THE MOTIF AND THE SCRIPT WERE DEVELOPED BY DANIEL ESTEVES FROM DISCUSSIONS AND PROPOSALS OF HE TEAM OF THE PROJECT "IMPACTS OF NANOTECHNOLOGY UPON THE HEALTH OF WORKERS AND THE ENVIRONMENT".

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DANIELE CORREIA, EDUARDO BONFIM DA SILVA, GIL BERTO ALMAZAN AND PÉRSIO DUTRA FROM DIESAT;

WILLIAM WAISSMANN FROM FIOCRUZ/CESTEH;

SEBASTIÃO LOPES NETO FROM IIEP;

PAULO ROBERTO MARTINS AND RICHARD D. DULLEY FROM RENANOSOMA;

MARIO SIMOES MENDES JUNIOR FROM SRTE/SP;

CLEBER A. R. FOLGADO FROM MPA (MOVEMENT OF SMALL FARMERS);

LEILA NADIM ZIDAN, AS COLLABORATOR.

THE MOTIF ALSO HAD THE COLLABORATION OF THE EDITORIAL BOARD OF FUNDACENTRO AND THE FOLLOWING COLLEAGUE OF FUNDACENTRO: CRISTIANE PAIM DA CUNHA. THE INITIAL IDEA TO USE A TRANSPORTATION COMPANY FOR ALL COMIC BOOKS WAS DEVELOPED BY ALEXANDER CUSTODIO PINTO AND THE CHARACTERS OF THE CARRIER WERE CREATED BY JOÃO ANTONIO GARCIA, THE JÃO GARCIA.

OTHER TEXTS ON THE SUBJECT CAN BE FOUND AT:
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SHORT GLOSSARY (DICTIONARY OF TERMS)
OF NANOTECHNOLOGY CAN BE FOUND AT:
[HTTP://NANO.IIEP.ORG.BR/SITES/DEFAULT/FILES/GLOSSARIO_NANO.PDF](http://NANO.IIEP.ORG.BR/SITES/DEFAULT/FILES/GLOSSARIO_NANO.PDF)



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FORMAT 16 X 23 CM
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CIRCULATION: 1.000 EXEMPLARES
2015

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