



Biosecurity and Biosafety: an experience from the South on Capacity Building

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AMBIÓ



The Brazilian Biosafety Association-ANBio's Aims



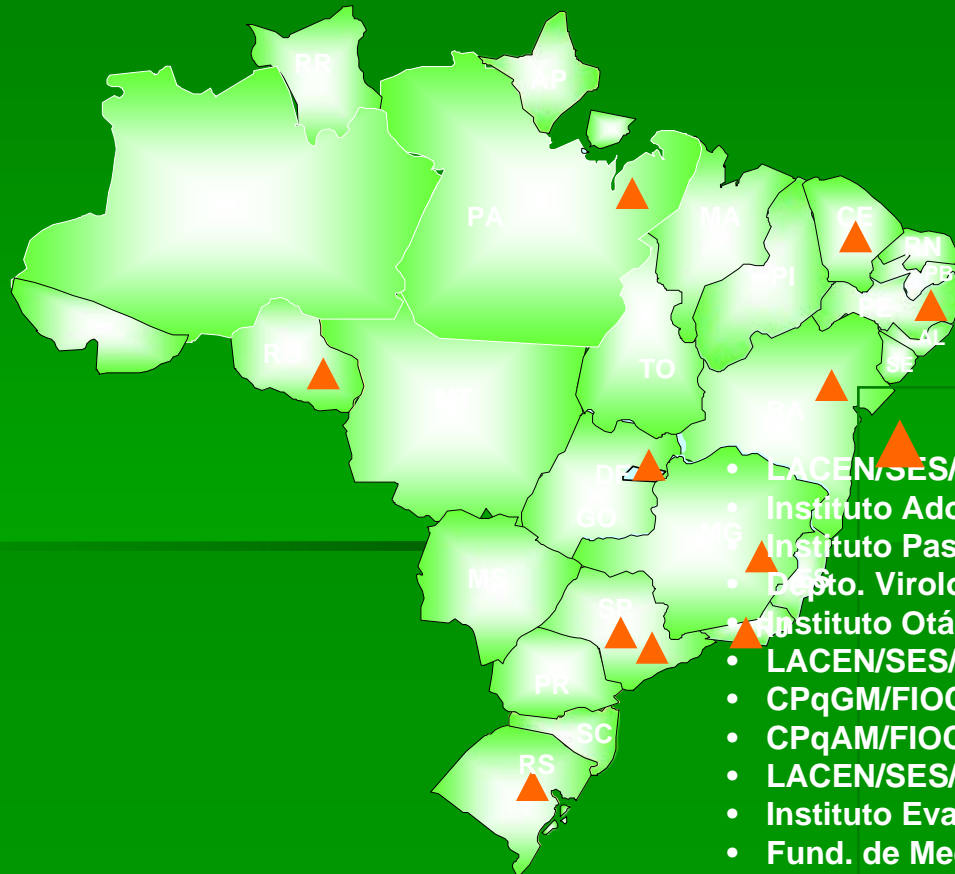
- ✓ Capacity Building on Biosafety and Biosecurity
- ✓ Stimulate Biosafety as a discipline in Brazil
- ✓ Develop the "Biosafety Thinking" within the labs
- ✓ Support establishment of regulatory frameworks at national and institutional levels
- ✓ Stimulate the safe use of new technologies
- ✓ Prevent the misuse of biological material

The International Biosafety Working Group

- Development of an international Biosafety agenda: harmonization, information sharing, development of common standards
- Supporting Biosafety Science and Research
- International Forum for Biosafety professionals
- Development and advancement of national Biosafety expertise and the establishment of national Biosafety organizations

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Public Health Laboratories Level 3 in Brazil



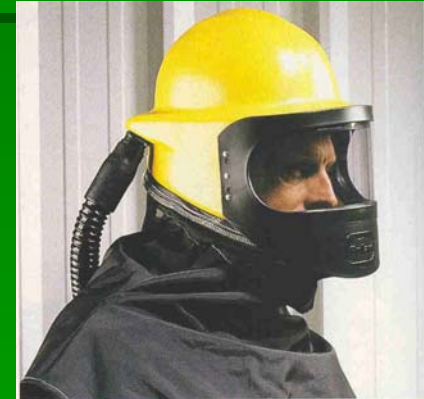
Biosafety Level 3 Laboratories (12)

- LACEN/SES/RS
- Instituto Adolfo Lutz/SES/SP
- Instituto Pasteur/SES/SP
- Inst. Virologia/IOC/FIOCRUZ/RJ
- Instituto Otávio Magalhães/FUNED/SES/MG
- LACEN/SES/DF
- CPqGM/FIOCRUZ/BA
- CPqAM/FIOCRUZ/PE
- LACEN/SES/CE
- Instituto Evandro Chagas - IEC/PA
- Fund. de Med. Trop. do Amazonas/SES/AM
- Centro de Pesq. em Med. Tropical/SES/RO

Developed Programs in BSL-3 Laboratories in Brazil

Arbovirus
Hantavirus
HIV
Rabies
Tuberculosis
Plague

Biosecurity Emergencies- Anthrax



Agriculture Laboratories for FMD

BSL-3 Laboratories (7):

Goiânia

Rio de Janeiro

Recife

Belém

Campinas

Porto Alegre

Pedro Leopoldo /MG



SOME BIOSAFETY FEATURES

- **Biosafety is a relatively new and challenging field of scientific knowledge in LAC**
- **Biosafety was institutionalized in Brazil with the approval of a project of law in the 80's**
- **The first Biosafety law 8.794 / 1995 for GMOs**
- **In 1999 the Brazilian Biosafety Association-ANBio was founded**
- **On March 24, 2005, the Biosafety law was reviewed -law 11.105, 2005 for GMOs**

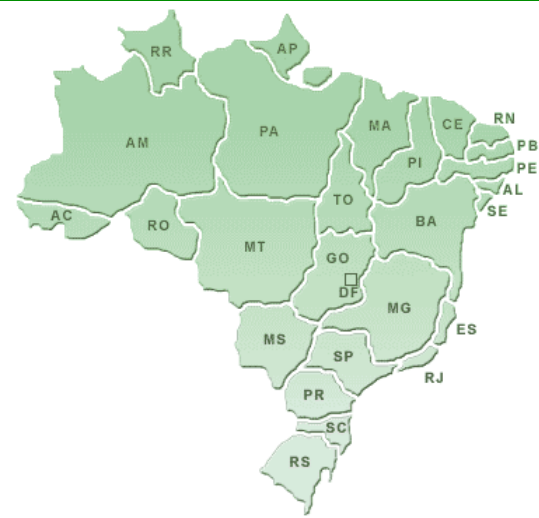
First Steps on Biosafety Training in Brazil

- 80's First projects on R & D considering Biosafety training on biotechnology
- 90's First institutional initiatives for short term courses on Biosafety- health and agriculture (Fiocruz and Embrapa)
- Enhancement of partnerships between LA countries- CBAB (Brazil –Argentina)
- 1996- Introduction of Biosafety as a discipline at University level (health, agriculture and environment)- CNPq

Overview of Biosafety and Biosecurity Courses 2001-2008 in Brazil

- 15 Universities- supported by the Ministry of S&T
- Concentration of courses on Biosafety of GMOs, but also on biosafety of biological risks (human and animal- 25%)- post-graduation level
- Multidisciplinary program to cope with the diversity of subjects to be considered during risk assessment procedures
- Hands on courses with case studies
- Duration of the training: short and long term (40 – 420 hours)
- 2007- First Biosecurity Course in Brazil- ANBio with support of BEP
- 2007- New Program of CNPq to enhance post-graduation on Biosafety
- 2008- Regional Biosecurity Courses- ANBio, BEP and MH

Brazilian Biology Olympiad Introduced since 2005 Biosafety Concepts



3 Olimpíada Brasileira Biológica



Caderno 2



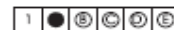
OBB

Neste caderno você encontrará um conjunto de 11 páginas numeradas sequencialmente, contendo 50 (sessenta) questões.

Não abra o caderno antes de receber autorização.

INSTRUÇÕES:

1. Complete todos os campos do cartão resposta.
2. Ao receber autorização para abrir este caderno, verifique se a impressão, a paginação e a numeração das questões estão corretas.
3. Caso ocorra qualquer erro, notifique o fiscal.
3. Leia atentamente cada questão e escolha a alternativa que mais adequadamente responde a cada uma delas. Marque sua resposta no cartão de respostas fazendo na última página da prova, cobrindo fortemente o espaço correspondente à letra a ser assinalada; utilize caneta azul ou preta, conforme o exemplo abaixo:



4. A leitura de marcas não registrará as respostas em que houver falta de nitidez e/ou marcação de mais de uma letra.
5. O cartão de respostas não pode ser dobrado, amassado, rasurado ou manchado.
6. Você dispõe de 5 (cinco) horas para fazer esta prova.
7. Candidatos somente poderão sair de sala após 2 horas de aplicação da prova.
8. Ao terminar a prova, entregue ao fiscal o cartão de respostas e este caderno poderá ser levado para casa.
9. Os candidatos que aguardarem o término da prova poderão levar consigo o caderno de questões.
10. Os últimos dois candidatos somente poderão sair juntos e após observarem o fiscal LER OS CARTÕES RESPOSTA EM ENVELOPE COM COLA. O ENVELOPE DEVERÁ CONTER EM SEU LAORE A ASSINATURA DO FISCAL E DOS ALUNOS.

Data: 12 | MAIO | 2007

2007 More than 40.000 secondary students in all states of Brazil



Apoio:

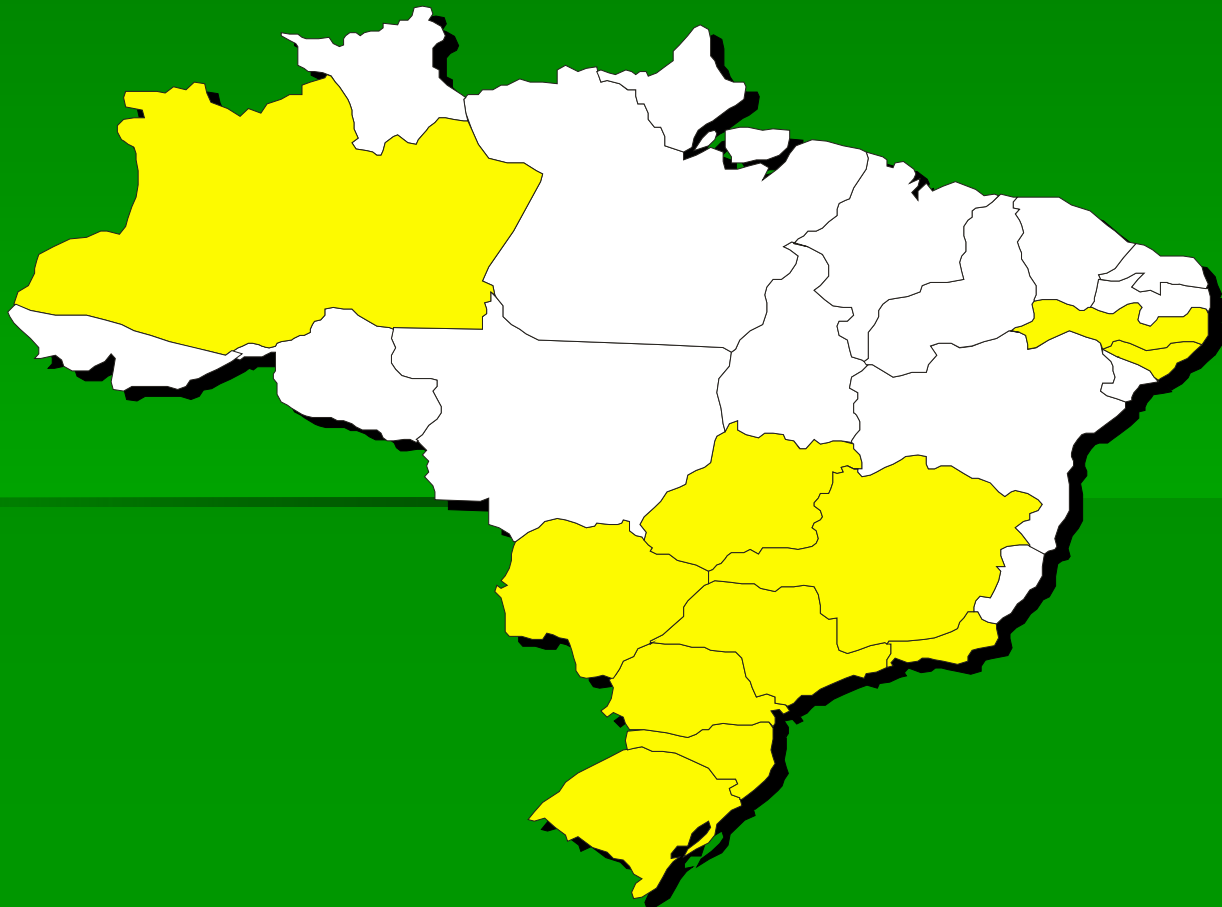


Nome do Aluno:

Biosafety Congress: Motivates Students to the Biosafety Discipline



Representation of Formal Biosafety Courses by Region



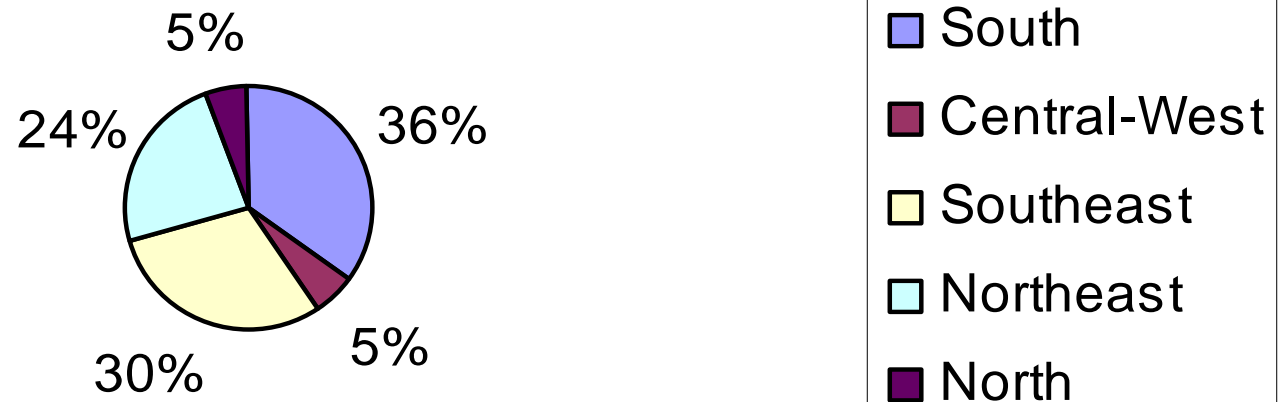
Main Structure of the Courses

- **Review Topics (Microbiology, Biochemistry, Immunology, Plant Physiology, etc...)**
- **Introduction to Biosafety- main concepts, risk classification, risk assessment, risk management, PPC, PPE, procedures in small and large scale, etc)**
- **Biosafety regulation**
- **Biosafety of GMOs**
- **Animal biosafety**
- **Waste treatment, transport, validation**
- **Inter-related issues- bioethics, IPR, biosecurity**
- **Design of facilities and commissioning**
- **Case studies**

Training by Region in Brazil

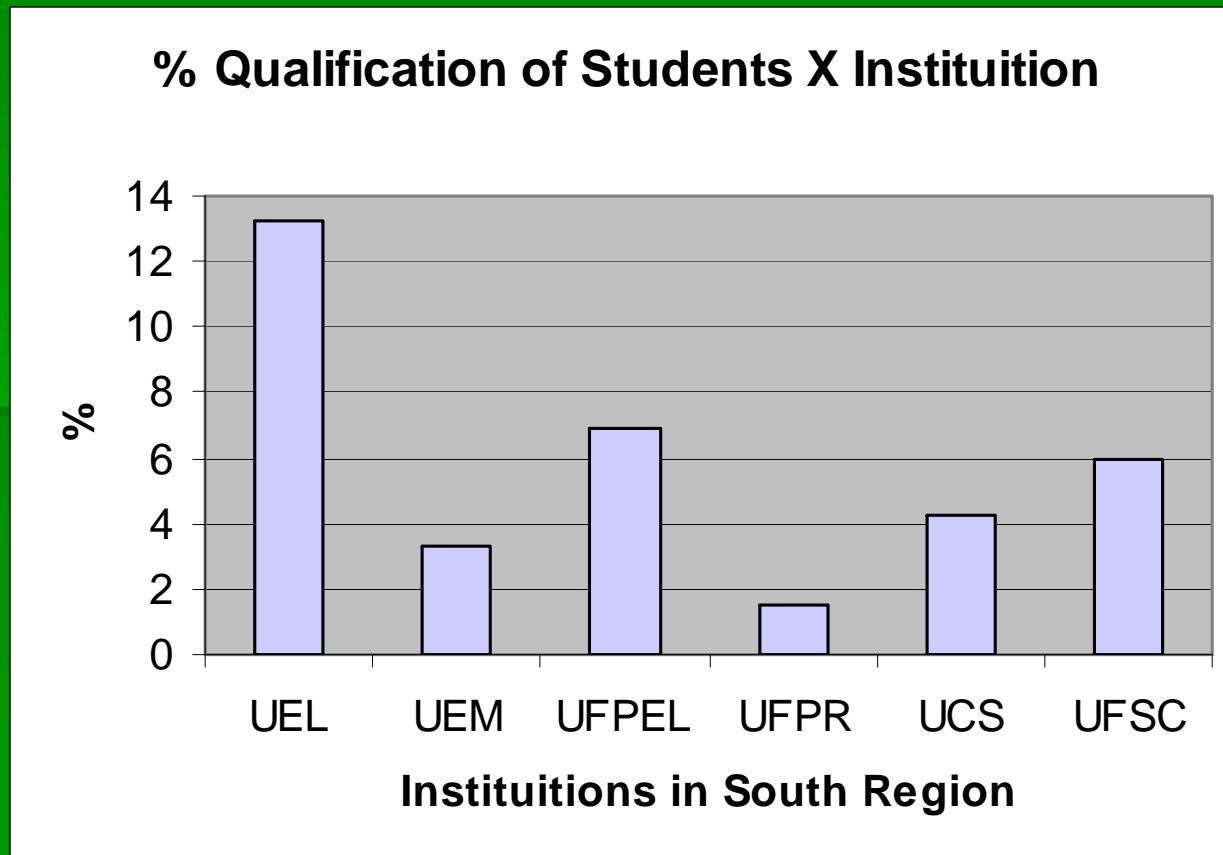
- The greater part of courses for qualification of human resources in the field of Biosafety is concentrated in the South and Southeast of the country

Qualification X Brazilian Regions



Biosafety Qualification Courses in Brazilian Regions

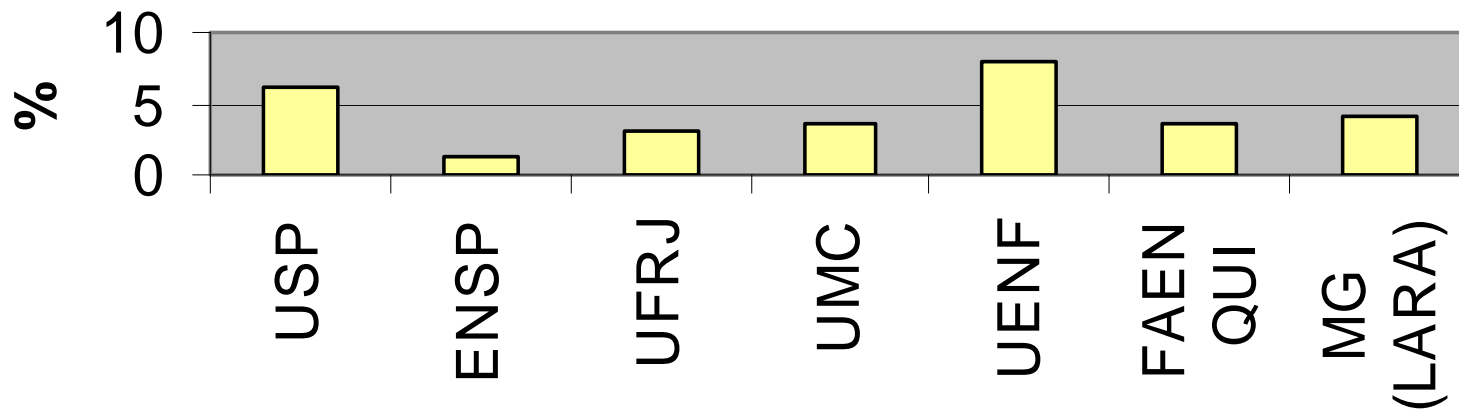
SOUTH REGION



Biosafety Qualification Courses in Brazilian Regions

SOUTHEAST REGION

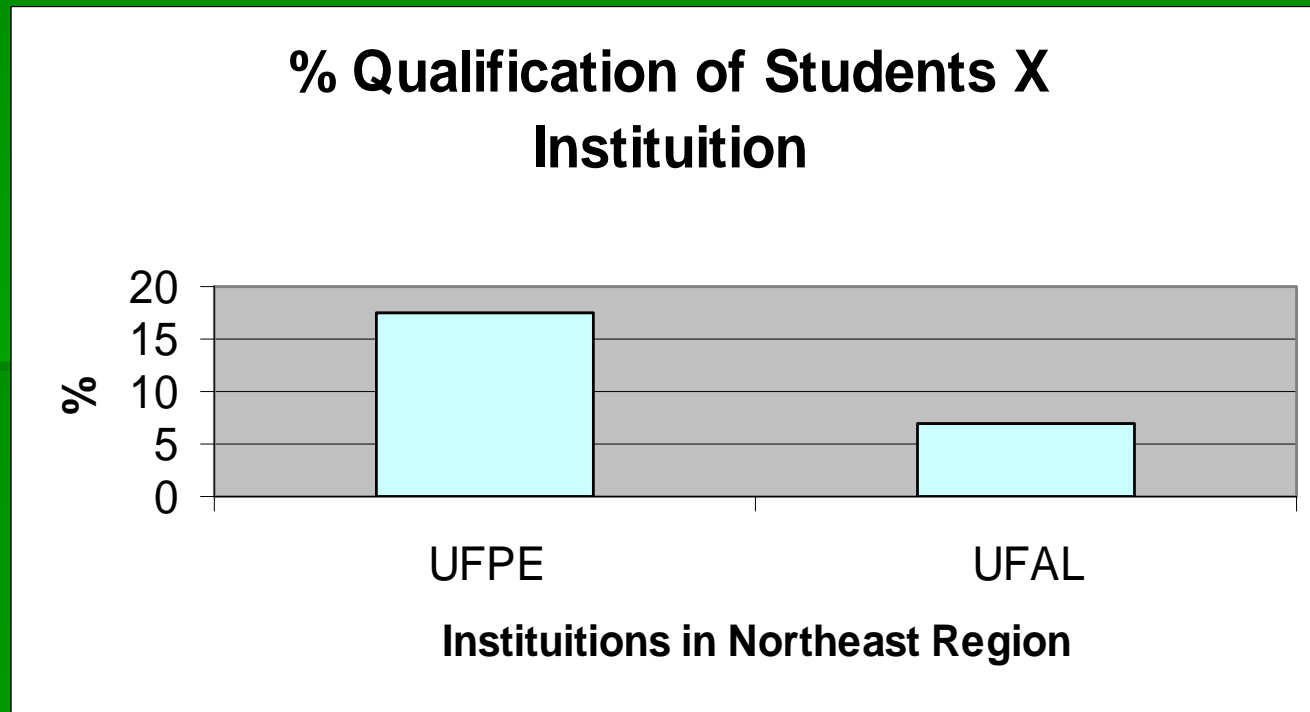
% Qualification of Students X Institutions



Institutions in Southeast Region

Biosafety Qualification Courses in Brazilian Regions

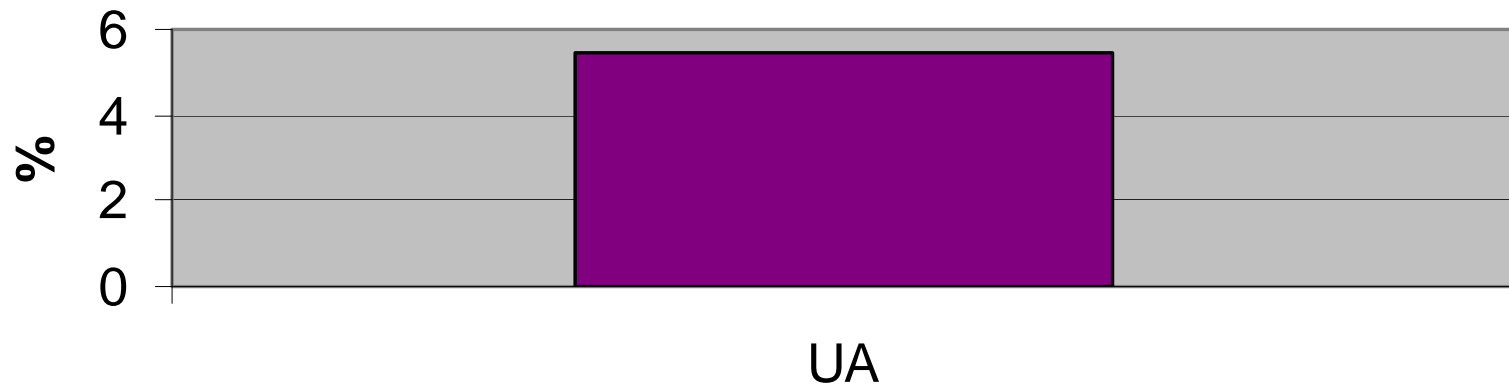
NORTHEAST REGION



Biosafety Qualification Courses in Brazilian Regions

NORTH REGION

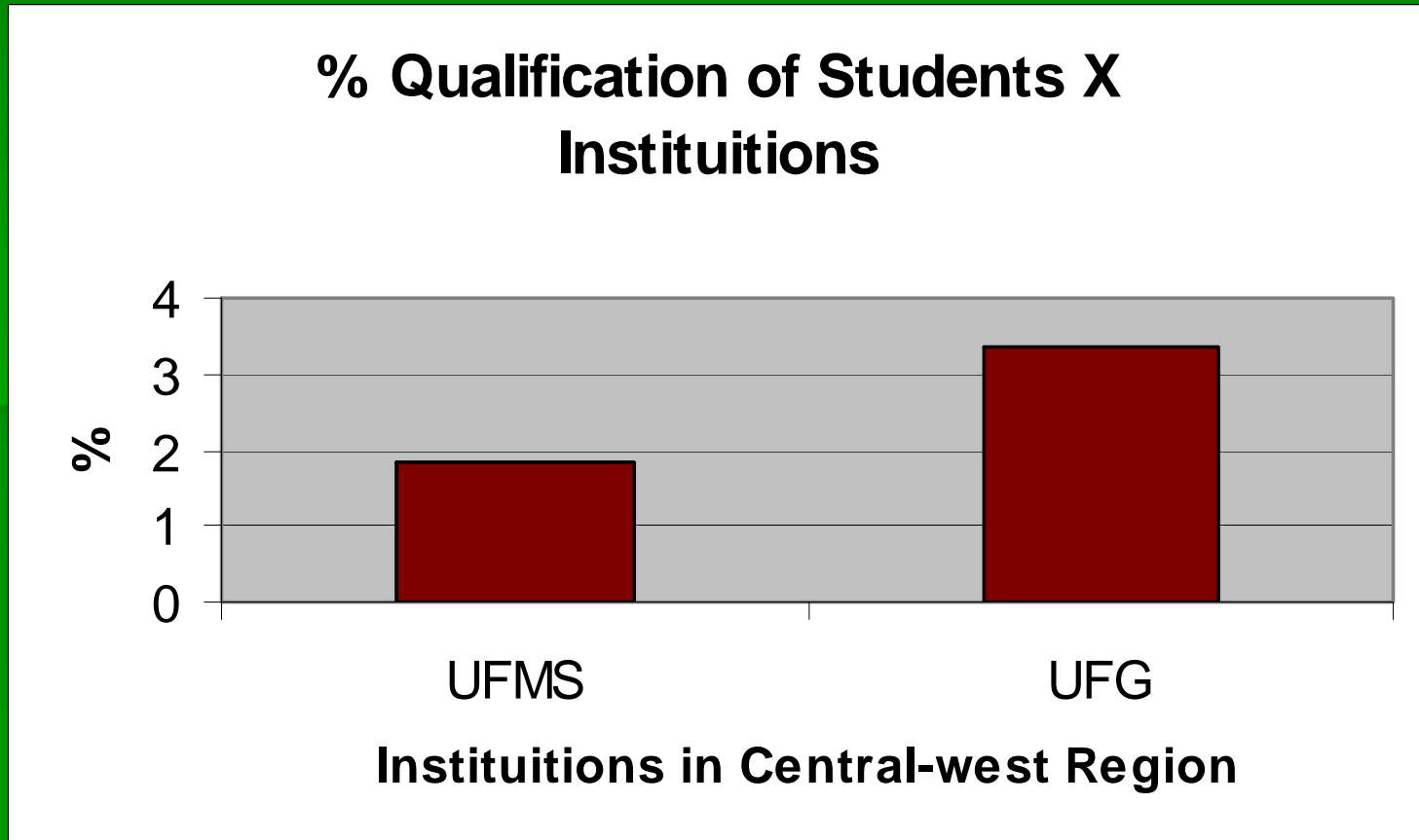
% Qualification of Students X Institution



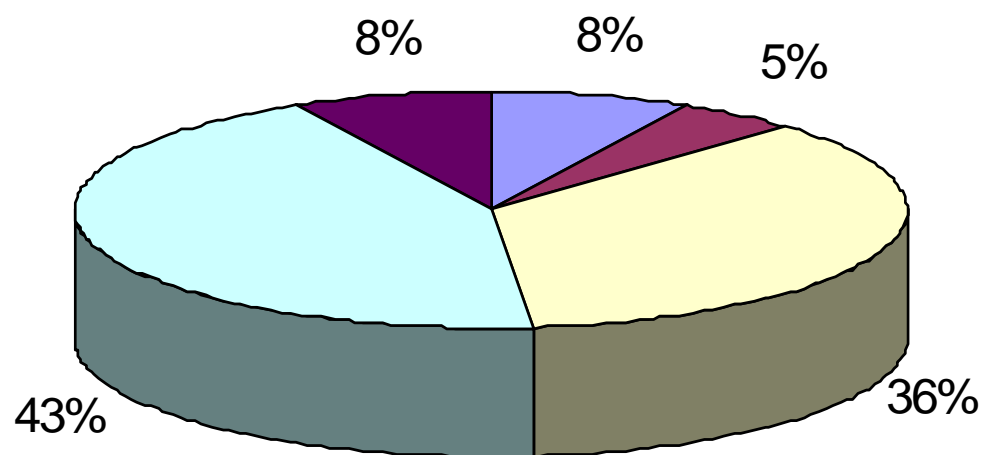
Institutions in North Region

Biosafety Qualification Courses in Brazilian Regions

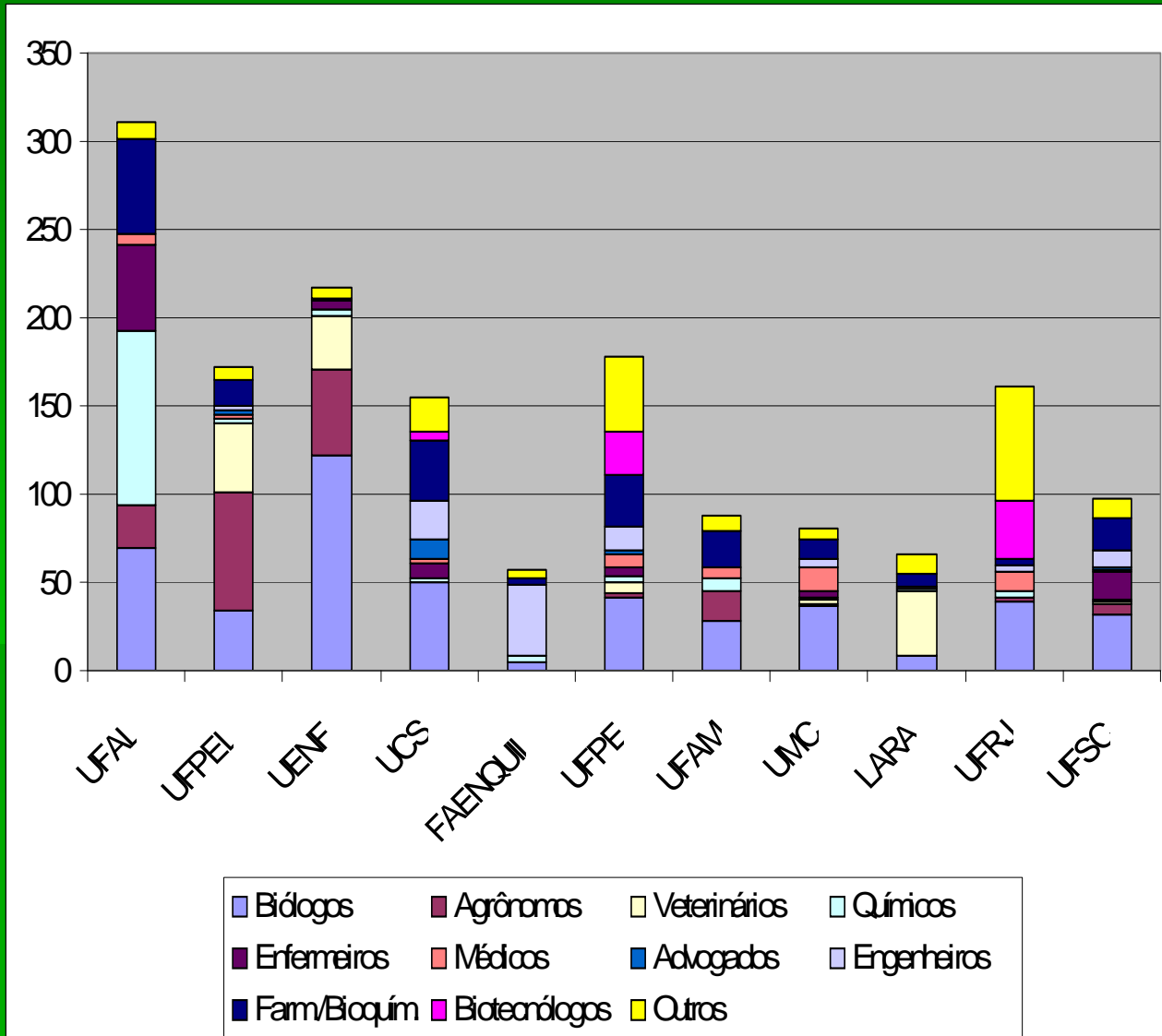
CENTRAL-WEST REGION



Background of the Students



Total of Participants by Professional Category



Pharmacy- 25%
Biology- 22%
Medicine- 18%
Veterinary- 11%
Chemistry- 8%
Agronomy- 8%
Engineering- 6%
Others-2%

Challenges to the next 2 years

- Harmonization of concepts/procedures within the country and LA region- Biosafety and Biosecurity (the microbe has no border!)
- Enhance cooperation South-North
- Reduce the Biosafety knowledge distance between North and South within the country and within LA Region
- Give support to the new university Biosafety courses (more 13 post-graduation courses)
- Introduce Biosecurity measures within the scope of Biosafety programs at national laboratories(ANBio's project approved by the Ministry of Health and BEP for 2008)

ACKNOWLEDGEMENTS

- We express our thanks to:
- The National Council of Scientific and Technological Development – CNPq of Ministry of Science and Technology of Brazil
- The Biosecurity Engagement Program- BEP from the US State Department
- Kelly Borges and Vivian Faustino from ANBio
- Sergio Lessa from CNPq
- Organizers of The Biosecurity Conference for this opportunity



Join us in Rio!

September 22-25, 2009

VI Biosafety Congress



Thank You!

