



Apresentação

Pecuária Sustentável. Pecuária de Sucesso.

Atualmente, um dos assuntos que dominam as grandes discussões é o aumento dos Gases de Efeito Estufa (GEE) na atmosfera, apontado como uma das principais causas das mudanças climáticas e do aquecimento global. Vários esforços têm sido realizados para sua redução em todo o mundo.

O Brasil hoje figura entre os quatro maiores produtores nas principais cadeias de produção animal, condição que deve ser mantida nas próximas décadas. Com isso tem sido alvo de preocupações internas e externas, pois os sistemas de criação desses animais contribuem com a emissão de GEE.

Os recentes ganhos de produtividade dos rebanhos foram obtidos por meio do aumento da eficiência dos sistemas de

produção. Isso diminuiu a demanda por novas áreas de pastagens, reduzindo a pressão de desmatamento e contribuindo para a sustentabilidade da pecuária nacional. Apesar dos ganhos já obtidos, é necessário fazer mais. O Brasil, atento ao cenário de mudanças climáticas, firmou compromisso internacional de reduzir os GEE emitidos pela agropecuária até o ano 2020.

A partir da adoção de sistemas integrados e melhores técnicas de manejo, é possível reduzir a emissão de GEE. Para que essas técnicas façam parte das políticas governamentais voltadas ao setor é preciso determinar o nível das emissões dos sistemas tradicionais e o potencial de mitigação (redução de emissões e remoção de GEE da atmosfera) dos sistemas bem manejados, em âmbito nacional.



Presentation

Sustainable Cattle Farming. Successful Cattle Operations.

One of the main topics of discussion at the present time is the increase of Greenhouse Gases (GHG) in the atmosphere, considered a major cause of the climate change and global warming. Efforts are being made throughout the world to reduce GHGs.

Brazil is currently among the four major animal producers in the world, a status that should stand for the next few decades. This has caused concern domestically and internationally, because livestock production systems contribute to GHG emissions.

The recent gains in herd productivity have been obtained through increased production system efficiency, which helps diminish the search for new pasture areas

and, thus, reduces deforestation, as well as contributes to the sustainability of Brazilian livestock farming. Despite the gains achieved, much remains to be done. Brazil's concern about climate change led to the country's international commitment to reduce GHGs from agriculture by 2020.

GHG emissions can be reduced by adopting integrated systems and improved management techniques. Incorporating those techniques into the governmental agricultural policies requires ascertaining the emission levels of the traditional systems and the mitigation potential (emission reduction and GHG removal from the atmosphere) of well managed systems at the national level.



Current scenario / Rationale / Objectives

International concerns. Brazilian efforts.

Cattle farming's share of the global emissions and removal of Greenhouse Gases (GHG) raises various issues. The results obtained in Brazil have been acknowledged by the international scientific community, but there is still a major demand for information.

The PECUS Research Network was created to study such issues taking into account the diversity of the Brazilian landscape, the production systems and the complexity of the aspects to be evaluated. PECUS is an inter-institutional network of multidisciplinary teams that work in the main Brazilian biomes, namely, Amazonia, Caatinga, Cerrado, Atlantic Rainforest, Pantanal, and Pampa.

The PECUS network studies the dynamics

of the GHGs in the production systems used in the various Brazilian biomes, aiming at livestock operations that are sustainable from the economic, social and environmental viewpoints.

The overall objective of the network is to contribute to the competitiveness and sustainability of Brazilian cattle farming through the development and organization of research that assesses the contribution of the animal production systems to the GHG dynamics, with a view to identifying mitigation alternatives and providing input to the public policy making process. PECUS also helps enhance standards and mechanisms that guarantee the quality, safety and traceability of livestock products.



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Estrutura do projeto

A perspectiva a partir da cadeia produtiva.

A rede PECUS é composta por várias unidades da Embrapa, universidades e outras instituições de pesquisa nacionais e internacionais, com apoio de agências de fomento à pesquisa e da iniciativa privada.

Os projetos de pesquisa da rede PECUS avaliam o balanço entre as emissões de gases de efeito estufa (GEE) e os sumidouros ("sequestro") de carbono dos vários sistemas de produção da pecuária, inseridos nos principais biomas brasileiros.

Os diversos processos relacionados com emissão e mitigação dos GEE são avaliados seguindo protocolos de pesquisa padronizados e previamente acordados, que contemplam o conjunto solo-planta-animal-atmosfera, para gerar

o balanço de carbono dos sistemas melhorados, em comparação com a pastagem tradicional e a vegetação nativa.

São avaliados sistemas extensivos e intensivos de produção a pasto, de integração lavoura-pecuária, silvipastoril, agrossilvipastoril e confinamentos para produção de bovinos, bubalinos, caprinos, ovinos, suínos e aves e tratamento de dejetos animais.

As informações geradas são armazenadas de forma organizada, integrada e sistematizada, permitindo estudos de modelagem biofísica, de aspectos econômico-sociais e geoestatísticos, sendo possível a análise conjunta dos resultados e a prospecção de cenários futuros.



Project structure

Prospects based on the production chain.

The PECUS network is composed of several Embrapa units, universities and other national and international research institutions and supported by official research development agencies and the private sector.

PECUS research projects evaluate the balance between greenhouse gas (GHG) emissions and CO² sinks (sequestration) of the various animal production systems in the main Brazilian biomes.

The diverse processes associated with GHG emission and mitigation are evaluated according to previously agreed, standard research protocols that consider the soil-plant-animal-atmosphere continuum for the

purpose of generating the carbon balance of enhanced systems, as compared with traditional grazing fields and native vegetation.

Both extensive and intensive pasture production systems are evaluated, including integrated cropping-animal production, forestry-pastoral activities, agrosilvopastoral systems, and confined production of cattle, buffalo, goat, sheep, swine, and fowl and treatment of animal wastes.

The information obtained is stored in an organized, integrated and systematized form, which enables biophysical modeling, socioeconomic and geostatistical studies, as well as the joint analysis of research outcomes and prospective studies.



PECUS

Resultados esperados / Desafios

Atendendo às expectativas do mundo globalizado.

Os resultados do projeto PECUS devem atender a demanda atual de várias redes de pesquisa e dos Inventários de Emissão e Remoções Antrópicas de Gases de Efeito Estufa em diversas escalas de abordagem.

Os principais resultados esperados pela rede de pesquisa são:

- estimar a contribuição dos diferentes sistemas de produção brasileiros na dinâmica dos gases de efeito estufa (GEE)
- indicar sistemas de produção mais competitivos e sustentáveis
- determinar o potencial de mitigação das pastagens e do componente arbóreo dos sistemas melhorados
- indicar práticas nutricionais, ingredientes ou aditivos que diminuam a emissão entérica de metano
- promover o melhor manejo das áreas com

pastagens nativas, mesmo que de maneira extensiva, no sentido de contribuir para promover a sustentabilidade da produção animal preservando a biodiversidade local

- contribuir para a preservação de importantes biomas brasileiros, como o Pantanal, a Caatinga e a região dos Pampas
- fornecer resultados organizados e analisados de forma a atender aos anseios de nossos parceiros comerciais, da comunidade científica, da sociedade, dos responsáveis pelos inventários nacionais e regionais de emissões e remoções antrópicas de GEE, evitando o uso de padrões de fatores de emissão de GEE inadequados para as condições brasileiras.

Outros impactos esperados são a formação, o fortalecimento e a ampliação da parceria científica com outros países.



Expected outcomes / Challenges

Meeting the expectations of a globalized world.

The results of the PECUS project should meet the current demand of several research networks and inventories of Anthropogenic Emission and Removal of Greenhouse Gas from different approach scales.

The main expected outcomes of the PECUS research network are:

- estimates of the contribution of the different animal production systems used in Brazil to the dynamics of greenhouse gases (GHG);
- selection of the most competitive and sustainable animal production systems;
- estimates of the mitigation potential of pastures and the tree component of the improved cattle farming systems;
- indication of the nutrition, ingredients, or additives that diminish enteric methane emissions;
- promotion of better management of native

pasture areas, even in grazing or extensive systems, with a view to enhancing the sustainability of animal production and the preservation of the local biodiversity;

- contribution to the preservation of important Brazilian biomes, such as the Pantanal, Caatinga and the Pampa region; and organized and analyzed results that meet the needs of our commercial partners, the scientific community, society at large, and those responsible for the national and regional inventories of anthropogenic emission and removal of greenhouse gases (GHG), avoiding the use of GHG emission factor standards inappropriate to the Brazilian conditions.

Other expected impacts include the creation, strengthening and broadening of scientific partnerships with other countries.