

王美芝,刘继军,吴中红,刘广华.地源热泵技术对规模化猪场节能减排的影响[J].农业工程学报,2011,27(4):251-254

## 地源热泵技术对规模化猪场节能减排的影响

### Effect of ground-source heat pump applied to piggery on energy saving and emission reduction

投稿时间: 7/22/2010 最后修改时间: 9/20/2010

中文关键词: [地源热泵](#) [环境保护](#) [猪场](#) [节能减排](#)

英文关键词: [geothermal energy](#) [pumps](#) [environmental protection](#) [scaled pig farms](#) [energy saving and emission reduction](#)

基金项目:生猪产业技术体系北京市创新团队项目

作者	单位
<a href="#">王美芝</a>	<a href="#">1. 中国农业大学动物科技学院, 北京 100193</a>
<a href="#">刘继军</a>	<a href="#">1. 中国农业大学动物科技学院, 北京 100193</a>
<a href="#">吴中红</a>	<a href="#">1. 中国农业大学动物科技学院, 北京 100193</a>
<a href="#">刘广华</a>	<a href="#">2. 承德市本特生态能源技术有限公司, 承德 067000</a>

摘要点击次数: 142

全文下载次数: 66

中文摘要:

为寻求规模化猪场环境控制中的节能减排措施,根据地源热泵技术在规模化猪场应用的实例,计算分析其投资的经济可行性和节能减排效果。结果表明,地源热泵系统较燃煤锅炉系统增加了环境控制设备投资,在现行煤电价格体制下,额外静态投资回收期6.4 a。地源热泵系统比传统的燃煤锅炉节能,热泵机组的理论COP大于4.0,一次能源利用效率大于1.28。地源热泵系统的CO<sub>2</sub>减排量为燃煤锅炉供暖方式排放量的60%。另外,在猪舍夏季降温方面,地源热泵系统较传统的蒸发降温方式节水。地源热泵系统是一种节能减排的规模化猪场环境控制方式。

英文摘要:

In order to find energy saving and emission reducing measures in environmental control of scaled pig farms, indices of energy saving and emission reduction were calculated and investment economical feasibility was analyzed based on an example of application of ground-source heat pump to scaled pig farm. The results showed that the investment of equipment of ground-source heat pump system was large than that of coal-fired boiler system; the static capital payback period was 6.4 years in present price system of coal and electricity. Ground-source heat pump system could save more energy than coal-fired boiler system, the coefficient of performance (COP) of the ground-source heat pump was more than 4.0, and the primary energy ratio was more than 1.28. In comparison with coal-fired boiler system, ground-source heat pump system could reduce CO<sub>2</sub> by 60% and save more water than traditional evaporative cooling system. Therefore, it is an energy saving and emission reducing mode of environmental control for scaled pig farms.

[查看全文](#) [下载PDF阅读器](#)

[关闭](#)

您是第3166122位访问者

主办单位: 单位地址: 北京朝阳区麦子店街41号

服务热线: 010-65929451 传真: 010-65929451 邮编: 100125 Email: [tcsae@tcsae.org](mailto:tcsae@tcsae.org)  
本系统由北京勤云科技发展有限公司设计