

Palavras-chave: artrodese do joelho, ortopedia, cão.

Two types of surgical fusion of stifle joint were compared. Arthrodesis of the stifle joint were performed on 14 healthy adult dogs, of mixed breed. They were allotted to two groups of seven animals. Fusion of femorotibial joint was made. Dogs in group 1 had the joint fixed by internal immobilization with crossed pins placed in a "X" fashion across the joint and a tension band wire was positioned and twisted tight as a eight figure on both sides. Dogs in group 2 were external skeletal fixation by placing a transfixation of Steinmann pins driven through the distal femur and proximal tibia that were connected with autopolymerized acrylic bars. After denuding stifle joint ostectomy of proximal tibia and ostectomy of distal femur were

completed and the joint angle chosen, has a complementary angle divided by two. After autogenous cancellous bone graft was inserted into the joint space, immobilization was placed to maintain the selected joint angle chosen immediately prior to surgery. All dogs were radiographed immediately after surgery, and 30, 60, and 90 days after immobilization of joint. Fusion of the joint was judged by radiographic appearance and macroscopic and microscopic observations were made. In the dogs of group 2 arthrodesis restored better satisfactory degree of function than in the dogs of group 1. Radiographic signs of advanced articular fusion were present in two dogs of each group. Histologic examination of the dogs of group 1 showed better bone healing. Results of this study indicated that these two types of immobilization are entirely satisfactory to produce arthrodesis of the stifle joint.

Key words: arthrodesis, stifle, orthopedic, dog.

MODIFICAÇÃO NA TEMPERATURA DO SOLO CAUSADA PELA SOLARIZAÇÃO EM ESTUFA PLÁSTICA¹

SOIL TEMPERATURE MODIFICATION CAUSED BY SOLARIZATION INSIDE PLASTIC GREENHOUSE

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A solarização do solo é um método físico de desinfestação do solo. O trabalho objetivou quantificar a modificação na temperatura do solo causada pela solarização

do solo em estufa plástica em Santa Maria, RS. Foram conduzidos dois ensaios durante os verões de 1992/93 e 1993/94 no interior de uma estufa tipo Capela, com dimen-

¹Dissertação de Mestrado apresentada ao Curso de Pós-graduação em agronomia, área de Produção Vegetal, Universidade Federal de Santa Maria (UFSM), 97119-900, Santa Maria, RS. Data da defesa: 17.10.94.

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sões de 10m x 25m, com cobertura e laterais de polietileno transparente de baixa densidade e orientada no sentido leste-oeste. Os tratamentos constaram de uma área solarizada e uma testemunha, sem cobertura plástica, sendo a área da estufa dividida em oito parcelas de 6m x 4m, com quatro repetições por tratamento. Durante o período da solarização, a estufa foi mantida permanentemente com as cortinas laterais abertas. Antes da colocação do plástico realizou-se uma irrigação para elevar a umidade do solo, a capacidade de campo na camada de solo de 0-50cm e após irrigou-se somente na área testemunha para manter o teor de umidade similar à área solarizada. Diariamente mediu-se a temperatura do solo com geotermômetros de mercúrio nas profundidades de 2cm, 5cm, 10cm e 20cm no centro de uma parcela solarizada e na área testemunha. No período de 26/01/93 a 07/03/93 mediu-se a temperatura do solo a 2cm e 5cm de profundidade com geotermômetros instalados a 0cm, 100cm, 150cm, 180cm, 200cm e 220cm do centro da parcela de 4m de largura. Baseado nos valores medidos e em modelo matemático descrito por DECICO (1974), estimou-se o número de dias, por decêndio, em que a temperatura permaneceu acima de 50°C durante um período mínimo de uma hora e o número médio diário de horas, por decêndio, em que a temperatura permaneceu entre 47°C e 50°C. Os resultados demonstraram que, em média, a temperatura máxima do solo solarizado nas profundidades de 2cm e 5cm, foi 10°C superior à área testemunha. Na área solarizada ocorreram temperaturas acima de 55°C nas profundidades de 2cm e 5cm e, em vários dias a temperatura do solo, nestas profundidades, permaneceu por mais de uma hora acima de 50°C, condição suficiente para inativar vários patógenos de solo. Conclui-se que a região de Santa Maria apresenta potencial para a técnica da solarização do solo em estufa plástica e que é possível estimar a temperatura máxima diária do solo solarizado com precisão satisfatória a partir dos valores diários da razão de insolação e temperatura máxima do ar.

Palavras-chave: solarização do solo, temperatura do solo, estufa plástica.

Solar heating of the soil by mulching with transparent polyethylene (known as soil solarization) is a physical method of soil disinfestation. This is accomplished by mulching a moistened soil during the months of high available solar energy with transparent plastic sheets. The purpose of this study was to measure temperature modification caused by solarization of a soil in a plastic greenhouse in Santa Maria, Rio Grande do Sul State. During 1992/93 and 1993/94 summers, two experiments were carried out in a 10m x 25m plastic greenhouse. Four 6m x 4m plots were mulched with transparent polyethylene (solarization treatment). Additional four plots were not mulched (control). Soil was moistened to a depth of 50cm before mulching and no additional water was applied in the solarized plots during mulching. The nonmulched plots were irrigated throughout the experimental period by sprinkling irrigation. During the experiment soil temperature was recorded using mercury column glass geothermometers installed at the center of one replication of both control and solarized soil. Daily measurements were taken at 9h, 15h30min, 16h, 18h, and 21h, local time, at 2cm, 5cm, 10cm, and 20cm depth. Additional geothermometers were buried at 2cm and 5cm depth as an attempt to determine horizontal profile of soil temperature in a solarized plot. These geothermometers were located at 0cm, 100cm, 150cm, 180cm, 200cm, and 220cm from center of the mulched plot. The number of days and hours with soil temperature higher than 50°C were estimated by a model described by DECICO (1974). The results indicated that solarization raised soil temperature. An increase of 10°C or more was observed in solarized soil at 2cm and 5cm depth. Temperatures exceeding 55°C in solarized soil at 2cm and 5cm depth have occurred in several days. Soil temperature at 2cm and 5cm depth exceeded 50°C during one hour or more in several days. This level is lethal for many soilborne pathogens. It can be concluded that the Santa Maria region presents potential to employ the solarization method in plastic greenhouse. Daily maximum temperature of solarized soil can be estimated with data of insolation rate and maximum air temperature.

Key words: soil solarization, soil temperature, plastic greenhouse.