

FPM Inc.

Depopulation Cart

CO2 Modified Atmosphere Killing Cart

Instructions for proper usage of MAK

The FPM CO2 cart is designed to be the most humane and effective means for the disposal of unwanted fowl when used properly. It is important that all users be properly trained and competent in the use of this device. The main concern for a user is to recognize at what point more CO2 gas needs to be added. At a 30% concentration of CO2, chickens will appear sedated and begin to lose coordination and ability to stand in about 30 seconds. Unequivocal unconsciousness may not occur until after a minute of exposure. A bird can be considered unconscious when it can not stand and its neck will no longer support its head. At a 45% or higher levels of CO2, these times are cut in half. It is important to understand that a 30% concentration of CO2 is not effective at killing chickens, only stunning them, so CO2 must be added to the cart periodically to maintain levels inside the cart that ensure the birds are killed in a timely manner. Some birds can enter into convulsions after becoming unconscious this is typified by the rapid beating of the wings. All birds should be dead after a few minutes exposure to an appropriate CO2 modified atmosphere. CO2 levels will always need to be 30% to insure the birds are properly stunned and must be held at 45% or above for at least 3 minutes before the cart is dumped to make sure all birds are killed, thus eliminating the possibility of any birds reviving after being exposed to fresh air. The users of the MAK cart will need to monitor the behavior of the birds through the windows at either end of the cart. The behavior of the chickens, as described above, gives a clear indication of the adequacy of the stunning gas atmosphere in the cart. If the birds are slow to appear sedated, more CO2 must be added. Birds must not be allowed to stack up and bury each other before the ones about to be overlain are unconscious. A 20# bottle of CO2 should kill 1200-1500 birds. Cart is designed to hold one 20# bottle of CO2. Carts are made to be used in conjunction with a larger primary CO2 supply located at the one end of the house. The house containing birds should be ventilated during flock removal to prevent the buildup of carbon dioxide. All operators should read and follow the material safety data sheet provided for CO2 usage. Always wear protective clothing and eyewear. Never point or open primary CO2 gas valve at or in the area of another worker. With the above in mind the following procedure should be followed to ensure the safe and humane disposal of unwanted birds.

- 1) Fill cart with CO2 from primary bottle for 1-10seconds depending on pressure. Open top loading door of cart and insert hose, direct the nozzle downward toward the floor. The cart must be filled from bottom up. In this manner the CO2 heavier than air, will force air up and out the open door. Loading the cart with birds must begin immediately. Close top loading door. Open gas valve on the small 20# bottle of CO2 located in the bottom of the cart. Gas is now capable of being injected into the cart by opening the hand lever valve.

- 2) The level of CO₂ will drop below 30% within about 2 minutes. Begin loading birds through the hinged doors located at either end of cart and top door if applicable. It will take approximately 30-42 birds to completely cover the floor depending model of cart used. User should now monitor the behavior of the birds by looking through the windows in the top of the cart to make sure birds are losing consciousness signified by the inability to stand and hold their heads up. If birds appear to be unaffected by gas add a ½ to 2 second burst of CO₂ by opening the hand control valve on the cart. The amount of time hand control valve is open will depend on pressure and level of CO₂ in the onboard bottle. The top door of cart should always be closed when adding CO₂. When all birds appear to be unconscious; load another group of 30 or more birds. Again at this time monitor the behavior of the birds and add CO₂. Short bursts of CO₂ are all that is required. A higher than necessary flow of CO₂ will cause the supply hose to freeze especially when working with a full 20# of CO₂. If this occurs allow line to thaw and reduce the amount of time that one opens the hand control valve.
- 3) Continue this process of adding birds and CO₂ about every minute until the cart is loaded.
- 4) 150-175 birds is considered a full load. Overloading cart may cause damage. Never fill cart to the point of covering the gas manifold. The gas manifold is identified as the tubing drilled with holes located inside the cart directly in line with the hand control valve. Do not overload cart to the point of exceeding the capacity of the floors in the building. Check with building supervisor to determine capacity.
- 5) When cart is fully loaded it may be necessary to again add CO₂. You may use the CO₂ on the cart or push cart back to unloading area where primary bottle of CO₂ is located and add gas as needed. Monitor bird behavior to ensure all birds are dead before unloading. Never allow dead birds to remain in cart for any extended length of time.
- 6) To unload cart pull back on hand lever located on bottle end of cart to open the large unloading door. Roll the cart forward to a predetermined stop. This can be accomplished with a piece of wood or metal stop affixed to the dock. Pull back on hand lever, unloading door should now be open and front edge of cart hanging over the dock. Two people may be needed to raise the back end of the cart up to facilitate the unloading of all the birds.
- 7) When cart is empty close the unloading door and make sure door is latched. Hand lever should be in forward position when latched. Cart is now ready to start process again.
- 8) A 20# bottle of CO₂ will be good for killing 1200-1500 birds if used correctly. As the cart bottle loses gas and pressure, longer bursts of CO₂ will be needed to properly dispose of the birds. It is thus important for the user to monitor the behavior of the birds and add longer bursts of CO₂ from the 20# bottle as required.
- 9) To replace the 20# bottle of CO₂ close bottle valve and loosening the nut on the end of the hose nearest to the bottle. Replace with a full bottle, tighten nut and turn bottle valve on to resume process.
- 10) After the process of disposing birds is over close bottle valve and remove gas bottle. Carts should be cleaned with pressure washer and disinfectant. Leave doors open to allow for drying. Never work or crawl inside of cart with CO₂ bottle installed. Carts should be stored separate from CO₂ bottles. CO₂ bottles should be stored in compliance with applicable regulations.

If you have any questions or concern in the use of this device contact FPM Inc. Fairbury, NE 68352 Phone 402-729-2264 web www.fpmne.com