CLAIMS

1. Use of a Dry Hydrogen Peroxide (DHP) generating device in the preparation of a poultry space for use in a method for improving poultry eggs comprising placing poultry eggs into a poultry space, providing dry hydrogen peroxide (DHP) gas that is free of hydration, organic species, and less than 0.015 parts-per-million (ppm) ozone, at a concentration of between 0.01 parts per million (ppm) and 10 ppm to said poultry space, and maintaining said poultry eggs in said poultry space for a storage period, wherein said improving poultry eggs comprising reducing the load of a pathogen (bacterial, viral), increasing hatchability, reducing the number of pipped unhatched eggs, increasing chick quality, improving chick quality scores, reducing chick mortality, or reducing mortality in chicks hatched from the treated eggs.

2. A poultry space for the storage of poultry eggs comprising a temperature below physiological zero and continuously provided with dry hydrogen peroxide (DHP) gas that is free of hydration, organic species, and less than 0.015 parts-per-million (ppm) ozone to maintain DHP gas at a concentration of between 0.001 parts per million (ppm) and 5 ppm, wherein said temperature is maintained between 10 degrees Celsius (°C) and 25 °C.

3. Use of a Dry Hydrogen Peroxide (DHP) generating device in the preparation of a poultry space for use in a method of increasing the feed conversion ratio in poultry production comprising providing DHP gas at a concentration of at least 0.01 parts per million (ppm) to a population of growing birds, wherein said DHP gas is free of hydration, organic species, and less than 0.015 parts-per-million (ppm) ozone.

4. Use of a Dry Hydrogen Peroxide (DHP) generating device in the preparation of a poultry space for use in a method of reducing damage to poultry production facilities from insect infestation comprising providing a poultry production facility with DGP gas at a concentration of at least 0.01 parts per million (ppm), wherein said DHP gas is free of hydration, organic species, and less than 0.015 parts-per-million (ppm) ozone.

5. Use of a Dry Hydrogen Peroxide (DHP) generating device in the preparation of a poultry space for use in a method for reducing disease in a poultry production flock comprising providing a poultry production facility with DHP gas at a concentration of at least 0.01

parts per million (ppm) to said flock, wherein said DHP gas is free of hydration, organic species, and less than 0.015 parts-per-million (ppm) ozone.

6. Use of a Dry Hydrogen Peroxide (DHP) generating device in the preparation of a poultry production facility for use in a method for reducing antibiotic use during the production of poultry comprising providing a poultry production facility with DHP gas at a concentration of at least 0.01 parts per million (ppm), wherein said DHP gas is free of hydration, organic species, and less than 0.015 parts-per-million (ppm) ozone.

7. A method for reducing odors emanating from a poultry production facility comprising providing a poultry production facility with DHP gas at a concentration of at least 0.01 parts per million (ppm), wherein said DHP gas is free of hydration, organic species, and less than 0.015 ppm ozone.

8. Use of a Dry Hydrogen Peroxide (DHP) generating device in the preparation of a poultry facility for use in a method for preventing the spread of a communicable disease in a poultry facility comprising identifying a poultry production facility having an introduced communicable disease and providing said poultry production facility with a DHP gas generating device and generating DHP gas at a concentration of at least 0.01 parts per million (ppm), wherein said DHP gas is free of hydration, organic species, and less than 0.015 ppm ozone.

9. Use of a Dry Hydrogen Peroxide (DHP) generating device in the preparation of a poultry facility for use in a method for treating an emergent disease at a poultry facility comprising providing said poultry facility with an excess of DHP gas generating devices and generating DHP gas at a concentration of at least 0.01 parts per million (ppm), wherein said DHP gas is free of hydration, organic species, and less than 0.015 ppm ozone.

10. Use of a Dry Hydrogen Peroxide (DHP) generating device in the preparation of a poultry space for use in a method for reducing the risk of omphalitis comprising incubating poultry eggs in a poultry space in the presence of Dilute Hydrogen Peroxide (DHP) gas during pre-incubation storage or during hatching incubation, wherein said DHP gas is free of hydration, organic species, and less than 0.015 parts-per-million (ppm) ozone and maintained at a concentration of between 0.001 parts per million (ppm) and 5 ppm during pre-incubation storage or during hatching incubation.

11. Use of a Dry Hydrogen Peroxide (DHP) generating device in the preparation of a poultry space for use in a method for decreasing the microbial load of a poultry egg comprising collecting eggs from a plurality of hens, transferring the eggs to an egg room having a temperature below physiological zero and having up to 10 parts-per-million DHP gas, storing the eggs prior to incubation, and removing the eggs after a time period for transfer to an incubator.

12. Use of a Dry Hydrogen Peroxide (DHP) generating device in the preparation of a poultry space for use in according to claim 1, wherein said storage period is between 1 and 3 days and said poultry space is a lay house or egg storage room.

13. Use of a Dry Hydrogen Peroxide (DHP) generating device in the preparation of a poultry space for use in according to claim 1, wherein said storage period is between 1 and 7 days and said poultry space is a hatchery egg room.

14. Use of a Dry Hydrogen Peroxide (DHP) generating device in the preparation of a poultry space for use in according to claim 1, wherein said storage period is between 1 and 18 days and said poultry space is a setting incubator.

15. Use of a Dry Hydrogen Peroxide (DHP) generating device in the preparation of a poultry space for use in according to claim 1, wherein said storage period is between 1 and 21 days and said poultry space is a combined setting and hatching incubator.

16. Use of a Dry Hydrogen Peroxide (DHP) generating device in the preparation of a poultry space for use in according to claim 1, wherein said storage period is between 1 and 5 days and said poultry space is a hatching incubator.

17. Use of a Dry Hydrogen Peroxide (DHP) generating device in the preparation of a poultry space for use in according to claim 1, wherein said storage period is at least one hour.

18. Use of a Dry Hydrogen Peroxide (DHP) generating device in the preparation of a poultry space for use in according to claim 1, wherein said storage period is at least 8 hours.

19. Use of a Dry Hydrogen Peroxide (DHP) generating device in the preparation of a poultry space for use in according to claim 1, wherein said concentration of DHP gas is at least 0.05 ppm.

20. A method for incubating eggs comprising:

a. placing eggs for hatching into an incubator capable of producing dry hydrogen peroxide (DHP) gas that is free of ozone at a concentration of between 0.01 parts per million (ppm) and 10 ppm;

b. incubating said eggs in said incubator for a first incubation of between 1 and 18 days in the presence of DHP gas at a concentration of between 0.01 parts per million (ppm) and 10 ppm.

21. The method of claim 20, further comprising incubating said eggs for a second incubation of between 1 to 5 days, or until hatching is complete, in the presence of dry hydrogen peroxide (DHP) at a concentration of between 0.01 parts per million (ppm) and 10 ppm.

22. The method of claim 21, wherein said second incubation is in a second incubator.

23. The method of claim 20, wherein said eggs for hatching are stored at a temperature below physiological zero and dilute hydrogen peroxide (DHP) gas at a concentration between 0.01 and 5 parts-per-million (ppm) of DHP gas for between 1 and 7 days prior to step (b).

24. The method of claim 20, wherein said DHP gas concentration is at least 0.05 ppm.

25. The poultry space for the storage of poultry eggs according to claim 2, wherein said temperature is maintained between 16 °C and 18 °C.

26. The poultry space for the storage of poultry eggs according to claim 2 or 25, further comprising a relative humidity of between 75 and 88%.