

**EVALUATION OF CONCENTRATION OF VACUUM FREEZE DRIED COCONUT
(*Cocos nucifera*) WATER AND MEAT AS PHILIPPINE NATIVE
CHICKEN (*Gallus gallus domesticus*)
SEMEN EXTENDER *In vitro***

A Special Topic

Presented to

The College of Agriculture, Resources, and Environmental Sciences

Central Philippine University

Jaro, Iloilo City

In Partial Fulfillment

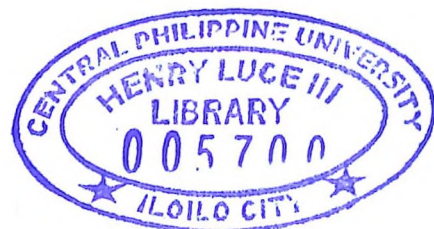
of the Requirements for the Degree

BACHELOR OF SCIENCE IN AGRICULTURE

By

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April 2024



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ABSTRACT

This study, conducted from October 16, 2023 to January 2, 2024, explores the impact of vacuum freeze-dried coconut meat and water on chicken sperm motility. Results indicate that concentrations of 0.5g and 1.0g of coconut meat and water exhibit the highest mean values of 4.0, positively affecting sperm motility. However, higher concentrations show diminishing returns, with 0.5g treatment consistently demonstrating the most sustained positive impact. It is noted that excessive coconut water intake can impair sperm motility and quality due to its composition, rich in soluble carbohydrates, oil, and salts. This research suggests potential improvements in breeding programs and reproductive outcomes within the native chicken industry. Future studies could utilize this research as a reference for *in vitro* investigations on *Cocos nucifera* as a semen extender for Philippine Native Chicken. Exploring the properties of *Cocos nucifera* offers promise in enhancing chicken production and combating infectious diseases, thereby maximizing the potential of the Philippine Native Chicken industry.

REFERENCES

- Ahuja, S. C., Ahuja, S., & Ahuja, U. (2014). Coconut - History, Uses, and Folklore. *Asian Agri-History*, 18(3). 221-248.
- Advances in veterinary sciences*. (2020). <https://doi.org/10.22271/ed.book.826>
- Bekele, Berhanu & Woldegiorgiss, Wondmeneh & Dessie, Tadelle. (2023). ROLE OF Artificial Insemination in Poultry: A review.
- Bustani, G. S., & Baiee, F. H. (2021). Semen extenders: An Evaluative Overview of preservative mechanisms of semen and semen extenders. *Veterinary World*, 14(5), 1220–1233. <https://doi.org/10.14202/vetworld.2021.1220-1233>
- Cabarles, J. C., Lambio, A. L., Vega, S., Capitan, S. S., & Mendioro, M. S. (2012). Distinct morphological features of traditional chickens (*Gallus gallus domesticus* L.) in Western Visayas, Philippines. *Animal Genetic Resources*, 51, 73–87. <https://doi.org/10.1017/s2078633612000410>
- Category Sustainable diets and nutrition -Indicator 10*. (n.d.). Retrieved May 9, 2024, from <https://openknowledge.fao.org/server/api/core/bitstreams/087e5b5e-11c3-4e7b-b7fd-1fa71a37186c/content>
- Chang, C. (2004). Cross-sector Comparisons of Poultry Production in The Philippines. ResearchGate. https://www.researchgate.net/publication/23519477_Cross-sector_Comparisons_of_Poultry_Production_in_The_Philippines
- Collins, K. E., Marks, H. L., Aggrey, S. E., Lacy, M. P., & Wilson, J. L. (2016). History of the Athens Canadian Random Bred and the Athens Random Bred control populations. *Poultry Science*, 95(5), 997–1004. <https://doi.org/10.3382/ps/pew085>
- Cornwall, G. A. (2018). Epididymis: Sperm Maturation and Motility. Elsevier eBooks, 292–297. <https://doi.org/10.1016/b978-0-12-801238-3.64369-6>

- Ferreira, M. (2017). 7 health benefits of coconut water. [Www.medicalnewstoday.com](http://www.medicalnewstoday.com).
<https://www.medicalnewstoday.com/articles/318394>
- Kowalczyk, A., Kuczaj, M., & Czerniawska-Piątkowska, E. (2020). The role of environmental optimization for storing bulls' sperm cells. *Systems Biology in Reproductive Medicine*, 66(5), 300–310.
<https://doi.org/10.1080/19396368.2020.1795432>
- Kumar, P., Jha, Pankaj & Alam, M G & Mansur, Md & Islam, Md Taohidul & Bari, Farida. (2018). Selection of breeding rams by evaluating semen quality. *Journal of Applied Animal Science*, 11(1), 9-20. Retrieved from:
<https://www.thaiscience.info/Journals/Article/JAAS/10989105.pdf>
- Mettler, J. R. & Torres, C. A. (2019). Challenges and solutions in the artificial Insemination of poultry: A review. *Journal of Applied Poultry Research*, 28(2), 459-472.
- Mohan, J., Sharma, S. K., Kolluri, G., & Dhama, K. (2018). History of artificial insemination in poultry, its components and significance. *Worlds Poultry Science Journal*, 74(3), 475–488. <https://doi.org/10.1017/s0043933918000430>
- Moreno, M. L., Kuwornu, J. K., & Szabo, S. (2020). Overview and constraints of the coconut supply chain in the Philippines. *International Journal of Fruit Science*, 20(SUP2), S524–S541. <https://doi.org/10.1080/15538362.2020.1746727>
- Odrada, P. M. S., Purnamasari, L., & Cruz, J. F. D. (2023). The Effects of Water-Based Coconut Extenders on Semen Preservation: A review. *Journal Sain Peternakan Indonesia*, 18(1), 20–26. <https://doi.org/10.31186/jspi.id.18.1.20-26>
- Santiago-Moreno, J. & Blesbois, É. (2022). Animal board invited review: Germplasm technologies for use with poultry. *Animal*, 16(3), 100475.
<https://doi.org/10.1016/j.animal.2022.100475>

- Seriño, M. N. V., Cavero, J. A., Cuizon, J. G., Ratilla, T., Ramoneda, B. M., Bellezas, M. H., I., & Ceniza, M. J. (2021). Impact of the 2013 super typhoon Haiyan on the livelihood of small-scale coconut farmers in Leyte Island, Philippines. *International Journal of Disaster Risk Reduction*, 52, 101939. <https://doi.org/10.1016/j.ijdrr.2020.101939>
- Vasan, S. (2011). Semen analysis and sperm function tests: How much to test? *Indian Journal of Urology*, 27(1), 41. <https://doi.org/10.4103/0970-1591.78424>
- Veterinary world. (2019). A diluent containing coconut water, fructose, and chicken egg yolk increases rooster sperm quality at 5°C. (n.d.). <http://www.veterinaryworld.org/Vol.12/July-2019/28.html><http://www.A diluent containing coconut water, fructose, and chicken egg yolk increases rooster sperm quality at 5°C.>