

Final degree project – June 2023
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OBJECTIVES

Assess current data about black soldier fly larvae (BSFL) oil and provide a review about its possible future as a sustainable ingredient in broiler chicken feed.

INTRODUCTION

The world population is expected to exceed 9 billion by the year 2050. New, more sustainable feed ingredients for broiler feed are of utmost importance. Recent studies showed that BSFL oil could possibly replace current fat sources used in feed production while reducing food waste and the use of antibiotics by the inclusion of lauric acid.

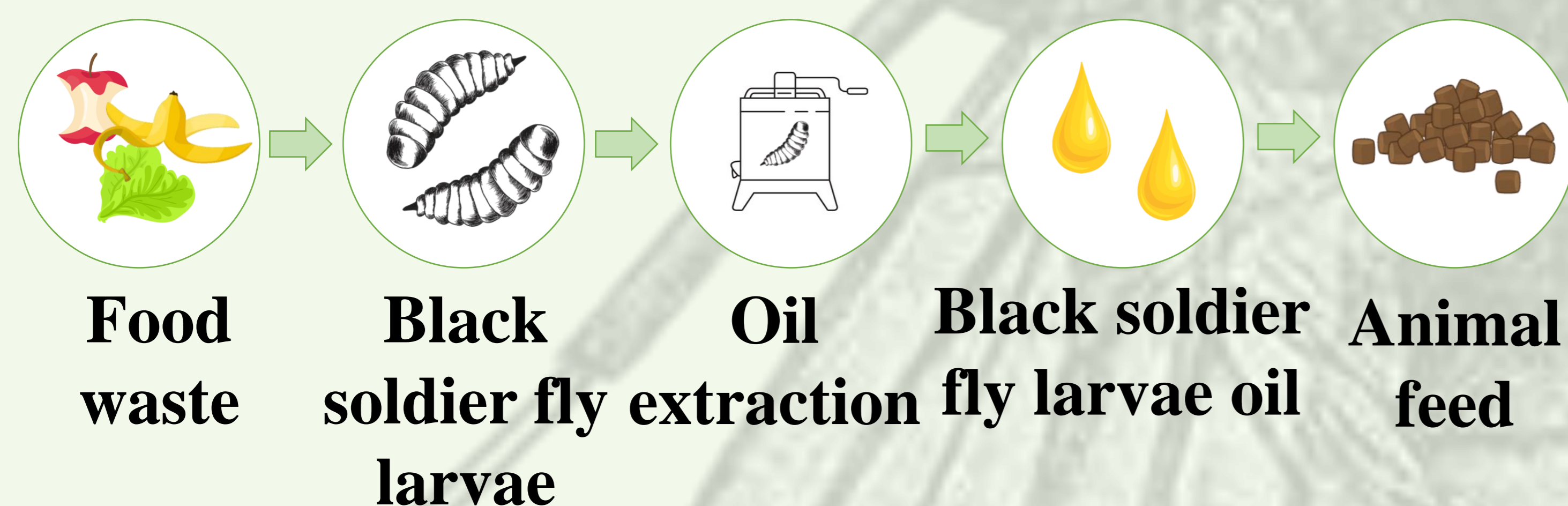


Figure 1. Black soldier fly larvae oil production process.

PERFORMANCE AND HEALTH IN BROILER CHICKEN

- No significant impact on growth performance, digestibility, health parameters, and carcass characteristics.
- Lauric acid presented possible antimicrobial effects.
- Increased levels of saturated fatty acids.
- No detectable bioaccumulation of pesticides, mycotoxins or pharmaceutical compounds.

SUSTAINABILITY

- Global warming potential.
- Low land and water usage.
- High energy consumption.
- Standardised life cycle assessment needed.

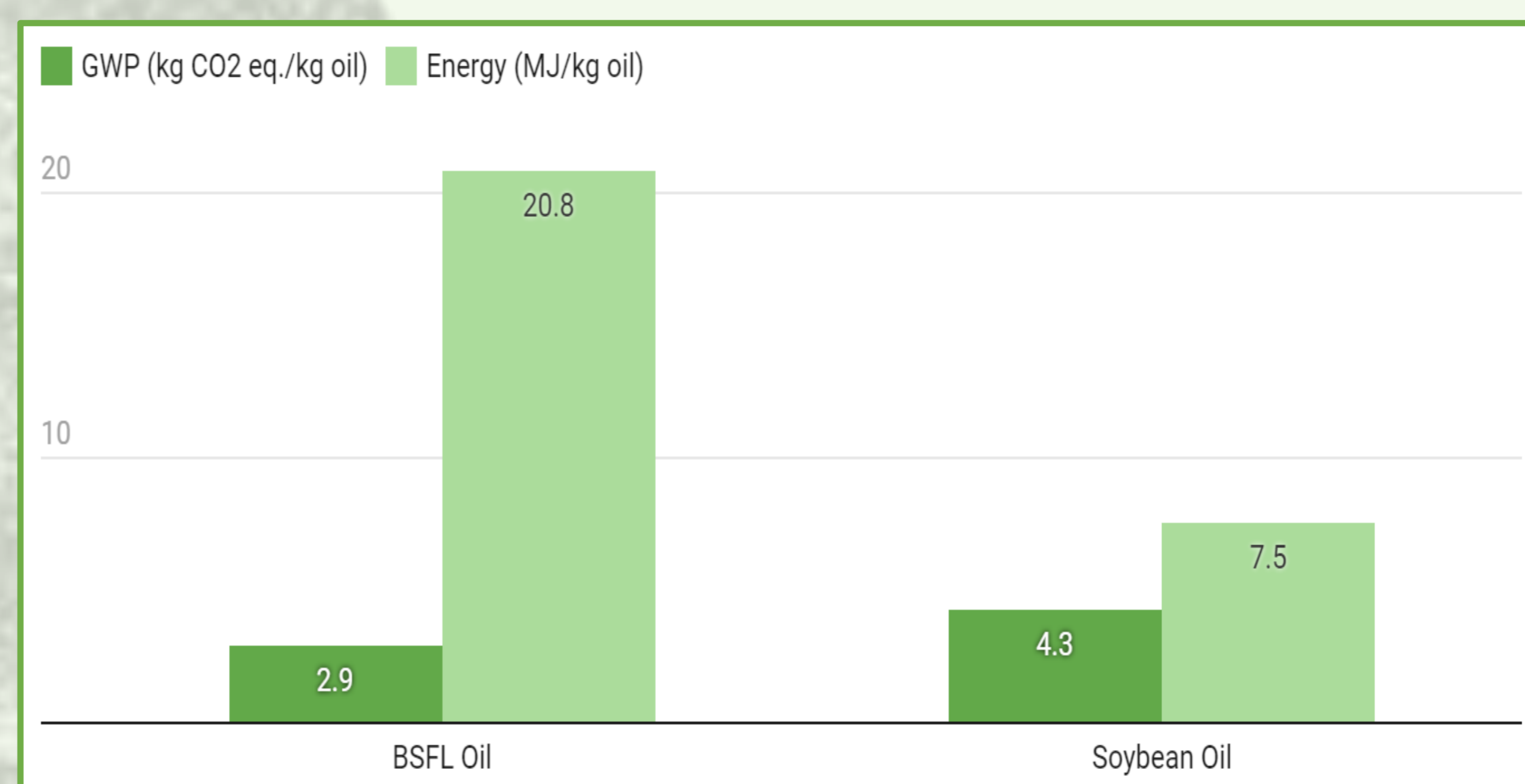


Figure 2. Comparing global warming potential (GWP) and energy used per kg of black soldier fly larvae (BSFL) oil and soy vean oil.

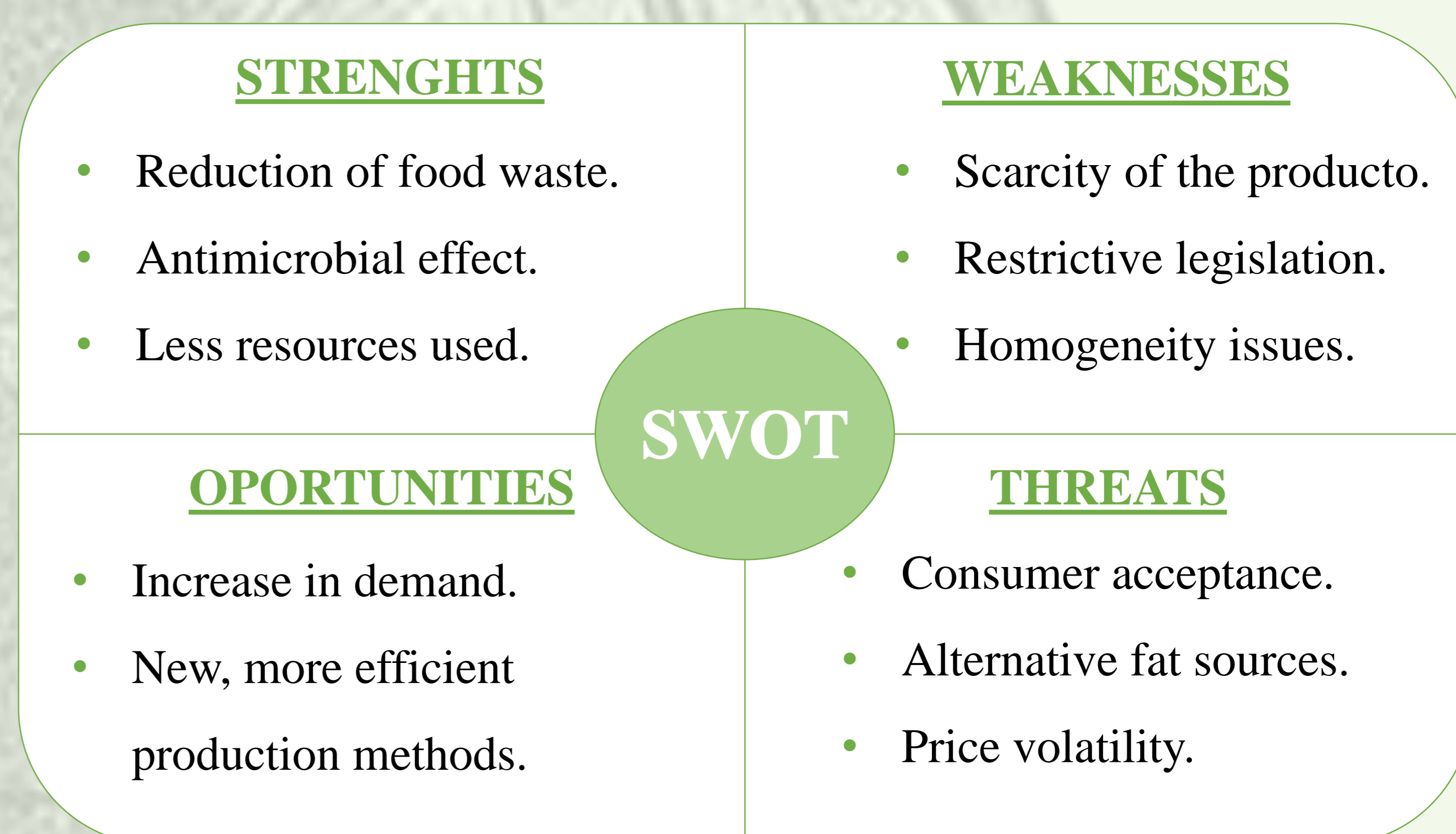


Figure 3. SWOT of including black soldier fly larvae oil as a fat source in broiler feed.

Conclusions

Black soldier fly larvae oil showed potential as a fat source in broiler diet. Nonetheless **studies on safety, sustainability, and scalability are scarce**. Current legislation restricts the use of diverse substrates for larvae rearing, requiring new laws to distinguish insects from farm animals. Black soldier fly larvae oil increased saturated fatty acids in the meat. Research on modifying fatty acid profiles for healthier meat is needed. If these issues are resolved, **black soldier fly larvae oil could be a sustainable ingredient for broiler feed**.