

ANALISIS *BULLWHIP EFFECT* DALAM *SUPPLY CHAIN MANAGEMENT*  
PADA KOMODITAS KEDELAI [*Glycine Max(L)*]

Fella Toti Architika<sup>1</sup>, Adi Djoko Guritno<sup>2</sup>, Novita Erma Kristanti<sup>2</sup>

ABSTRAK

Kedelai merupakan salah satu komoditi pertanian yang cukup penting dalam ketahanan pangan nasional. Terjadinya *bullwhip effect* menandakan adanya variasi permintaan yang terjadi pada rantai pasok komoditas kedelai kuning. Penelitian ini bertujuan untuk mengidentifikasi penyebab dan perhitungan *bullwhip effect* dilakukan untuk mengetahui di *tier* mana *bullwhip effect* ini terjadi. Analisa struktur biaya logistik dilakukan untuk mengetahui komponen biaya yang paling berpengaruh terhadap masing-masing aktivitas logistik. Biaya yang besar tentu dapat mengakibatkan permintaan berubah dan terjadi *bullwhip effect*. Strategi dalam *supply chain* diperlukan untuk meminimalisir terjadinya *bullwhip effect* ini.

Metode penelitian dilakukan dengan *convenience sampling* dan *snowball sampling* melalui *indepth interview* kepada pelaku *supply chain* komoditas kedelai kuning. Lokasi penelitian di sentra produksi kedelai di kabupaten Grobogan, Jawa Tengah. Penelitian dilakukan dari Oktober 2014 sampai Maret 2015.

Hasil penelitian menunjukkan dari 4 *tier* dalam *supply chain* kedelai di Grobogan, terjadi *bullwhip effect* pada *tier* pedagang. Analisis struktur biaya logistik menunjukkan biaya yang dominan terdapat pada aktivitas *material handling*, transportasi dan pengadaan sebesar 77,73%; 19,20%; dan 2,38% dari total biaya logistik. Strategi yang tepat dalam *supply chain management* terhadap hasil pengukuran *bullwhip effect* dapat diterapkan strategi *efficient supply chain* terhadap produk fungsional juga diharapkan dapat mengurangi terjadinya *bullwhip effect*.

Kata kunci : kedelai, *supply chain*, *bullwhip effect*, biaya logistik

---

<sup>1</sup>Mahasiswa Jurusan Teknologi Industri Pertanian, FTP UGM

<sup>2</sup>Staff Pengajar Teknologi Industri Pertanian, FTP UGM

ANALYSIS OF BULLWHIP EFFECT IN SUPPLY CHAIN MANAGEMENT  
FOR SOYBEAN COMMODITIES [*Glycine max (L)*]

Fella Toti Architika<sup>1</sup>, Adi Djoko Guritno<sup>2</sup>, Novita Erma Kristanti<sup>2</sup>

ABSTRACT

Soybean is one of the important agricultural commodities in national food security. The bullwhip effect indicates that a demand variation occurs in yellow soybean commodity supply chain. This study aimed to identifying the causes of the bullwhip effect and the calculation which tier in the bullwhip effect in this case. Logistics costs structure analysis was conducted to determine the most cost components affected the logistics of each activity. The huge costs can lead to change demand and cause bullwhip effect. Strategy in the supply chain is necessary to minimize this bullwhip effect.

The methods of this research was conducted by convenience sampling and snowball sampling through in-depth interview to the respondents throughout the yellow soybean commodity supply chain. The research was located in centers of soybean production in Grobogan, Central Java. The study was conducted from October 2014 until March 2015.

The results showed that from 4 tier in the supply chain in Grobogan soybeans, occurred bullwhip effect on merchants. Analysis of logistics cost structure shows that the dominant logistics cost was identified in the material handling, transportation and procurement activities that contribute to 77,73%, 19,20% and 2,38% of the total logistics cost. The right strategy in supply chain management to the results of bullwhip effect can be applied with efficient supply chain strategy for functional products. That is also expected to reduce the bullwhip effect.

*Keywords: soybean, supply chain, bullwhip effect, logistics cost*

---

<sup>1</sup>Student of Agroindustrial Technology Department, Faculty of Agriculture Technology, Gadjah Mada University

<sup>2</sup> Lecturer Staff of Agroindustrial Technology Department, Faculty of Agriculture Technology, Gadjah Mada University