WE CLAIM:

1. A beet washing system, comprising:

one or more SONAR-based sensing devices configured to sense an entrained air in a process water used for washing beets, determine a Gas Volume Fraction percentage (GVF%) and provide signaling containing information about a volumetric percent of the entrained air in the process water used for washing the beets;

one or more defoamer dosage pumps configured to receive control signaling containing information to control a dosage of defoamer provided to the process water to regulate the amount of foam in the process water used for washing the beets and provide the dosage of the defoamer to the process water to regulate the amount of foam in the process water used for washing the beets; and

a defoamer dosage controller having a signal processor configured to

receive the signaling;

keep a set point of GVF% determined to represent an absence of foam; and

provide the control signaling, based upon the signaling received and the set point of GVF% kept.

2. The beet washing system according to claim 1, wherein the GVF% is proportional to the foam generated in the process water used for washing the beets.

3. The beet washing system according to claim 1, wherein the dosage of the defoamer provided to the process water is proportional to the amount of foam in the process water used for washing the beets.

4. The beet washing system according to claim 1, wherein the beet washing system comprises:

a canal or channel configured to receive the process water and beets; and

a canal or channel antifoam dosing arrangement having a canal or channel SONAR-based sensing device configured to sense the entrained air in the process water flowing in the canal or channel, determine a canal or channel Gas Volume Fraction percentage (GVF%) and provide the signaling received by the signal processor of the defoamer dosage controller.

5. The beet washing system according to claim 4, wherein the canal or channel antifoam dosing arrangement comprises a canal or channel defoamer dosage pump configured to receive the control signaling and provide the dosage of the defoamer to the process water flowing in the canal or channel to regulate the amount of foam in the process water used for washing the beets.

6. The beet washing system according to claim 4, wherein the canal or channel SONAR-based sensing device and the canal or channel defoamer dosage pump are configured on the canal or channel.

7. The beet washing system according to claim 4, wherein the beet washing system comprises:

cannons configured to provide water for wetting the beets in the process water; and

a beet silo configured to contain the beets for washing, receive the water from the cannons for wetting the beets, and provide the process water and beets to the canal or channel.

8. The beet washing system according to claim 7, wherein the beet washing system comprises:

a washing station configured to receive the process water and beets flowing in the canal or channel, provide washed beet for further processing, and provide the process water for further processing.

9. The beet washing system according to claim 1, wherein the beet washing system comprises:

a clarifier having an inlet configured to receive the process water and mud, and having an outlet configured to provide clarified process water; and

a clarifier inlet antifoam dosing arrangement having a clarifier inlet SONAR-based sensing device configured to sense the entrained air in the process water flowing into the inlet of the clarifier, determine a clarifier inlet Gas Volume Fraction percentage (GVF%) and provide the signaling received by the signal processor of the defoamer dosage controller.

10. The beet washing system according to claim 9, wherein the clarifier inlet antifoam dosing arrangement comprises a clarifier inlet defoamer dosage pump configured to receive the control signaling and provide the dosage of the defoamer to the process water flowing into the inlet of the clarifier to regulate the amount of foam in the process water used for washing the beets.

11. The beet washing system according to claim 9, wherein the clarifier inlet SONAR-based sensing device and the clarifier inlet defoamer dosage pump are configured on the inlet of the clarifier.

12. The beet washing system according to claim 9, wherein the beet washing system comprises:

a washing station configured to receive the process water and beets flowing in the canal or channel, provide washed beet for further processing, and provide the process water and mud for further processing in the clarifier.

13. The beet washing system according to claim 9, wherein the beet washing system comprises:

a clarifier outlet antifoam dosing arrangement having a clarifier outlet SONAR-based sensing device configured to sense the entrained air in the clarified process water flowing from the outlet of the clarifier, determine a clarifier outlet Gas Volume Fraction percentage (GVF%) and provide the signaling received by the signal processor in defoamer dosage controller.

14. The beet washing system according to claim 13, wherein the clarifier outlet antifoam dosing arrangement comprises a clarifier outlet defoamer dosage pump configured to receive the control signaling and provide the dosage of the defoamer to the clarified process water flowing from the outlet of the clarifier to regulate the amount of foam in the process water used for washing the beets.

15. The beet washing system according to claim 13, wherein the clarifier outlet SONAR-based sensing device and the clarifier outlet defoamer dosage pump are configured on the outlet of the clarifier.