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Research Article

Research on Green Brand Development of Sports Nutrition Food

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Abstract: Aiming at the importance of sports nutrition food and necessity of its brand development and using the concept of brand DNA, the double helix model of brand competitiveness is established. Using the potato as the study object, we make an analysis for the comprehensive competitiveness of potato brand after the sample extraction, giving the weight for the criteria layer index and the program layer index, etc. The results show that the method adopted in this study has a great feasibility and operability and it has a great directive significance for potato enterprise to grasp the key factors in the market.

Keywords: Brand DNA, comprehensive competitiveness, double helix model, sports nutrition food

INTRODUCTION

As the frequency of exercise-induced fatigue and if it does not in a timely manner to eliminate fatigue, it will lead to those sports people physical and mental health damage. An effective way of eliminating exercise-induced fatigue is to supplement nutrition in time. Therefore, the consumption of sports nutrition food shows a trend of rapid growth and the development of its brand becomes more and more necessary. Because our country is a big industrial countries, it will take potato as the research object in this study to do some research on the development of its brand. There are many kinds of brand competitiveness evaluation models in foreign and it is shown in Table 1.

It is mainly from the angle of the combination of ecology and management to construct the double helix model of brand competitiveness in this study. And we make a comparative research on the brand comprehensive competitiveness (Carol and Suzanne, 2010). Through the study of this article, it can make potato brand to grasp the key advantage resources form core competitiveness, which has a certain guiding significance (Yu, 2000).

METHODOLOGY

The brand DNA theory: Brand DNA is borrowed from the basic idea of heredity and variation to research the formation, the process of development and evolution, the basic structure, the interaction and influence factor of the brand itself under the market environment. As the genetic research, the research on brand DNA hopes to find out the dominant and recessive genes, genetic and variation genes and the genetic algorithm, etc. The research and practice shows that brand DNA is the core value of a brand and it is the brand's unique value propositon, character and promise relayed to consumers through the enterprise's products and services.

The DNA of the brand concept: It mainly has the core theory, differentiation theory and value theory about the concept of Brand DNA.

The core theory: It thinks that brand DNA is the intersection part of the core competence, core values, core passions of enterprise, it is shown in Fig. 1.

At the same time, according to that whether consumers can directly apperceive brand DNA, brand DNA can be divided into dominant and recessive genes. Among them, the factors that can be directly apperceived by consumers are defined as dominant gene in DNA, such as the brand service. Instead, factors that cannot be directly apperceived are defined as recessive genes, such as the intrinsic value of the brand, the brand promise. It is shown in Fig. 2.

Differentiation theory: It thinks that brand DNA is the brand's uniqueness and it is the key of adhering to carry out and implementing different brand service process. It spreads the distinctive values and commitment of brand, which is shown in Fig. 3.

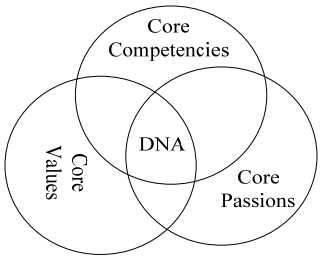

Fig. 1: Brand DNA of enterprise core

Table 1: Brand competitiveness evaluation models in foreign

Angle of perspective	The scholars	Definition
Enterprise perspective	Duncan and Moriarty (1999)	Potentials of customer: brand image, brand awareness, etc., (Duncan and Moriarty, 1999)
Consumer perspective	Teece *et al*. (1997)	The target of the brand: price advantage, satisfaction and loyalty, etc., (Teece *et al*., 1997)
	Kotler *et al*. (2002)	Brand awareness: brand recognition, brand recall, etc., (Kotler *et al*., 2002)
Brand perspective	Shi *et al*. (2008)	Leadership: maker share, cognition and localization, etc., (Shi *et al*., 2008)

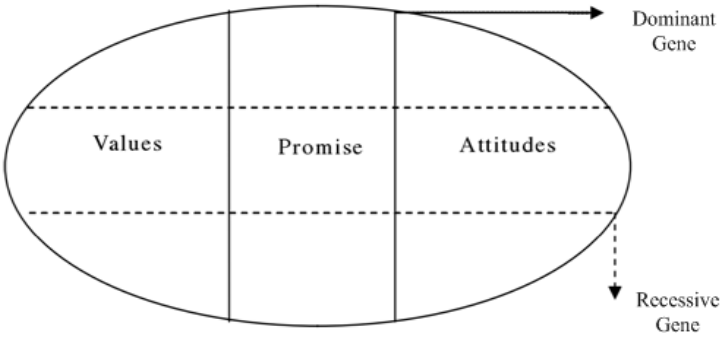

Fig. 2: The factor construction of brand DNA

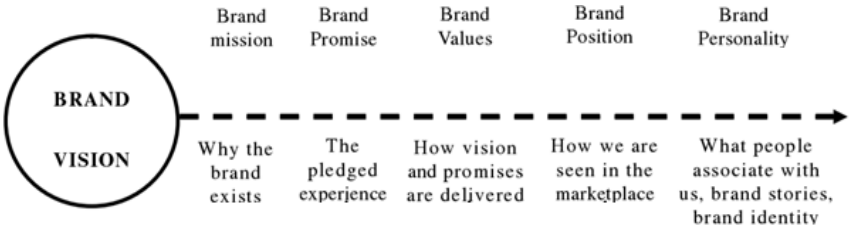

Fig. 3: Brand DNA of enterprise diversity

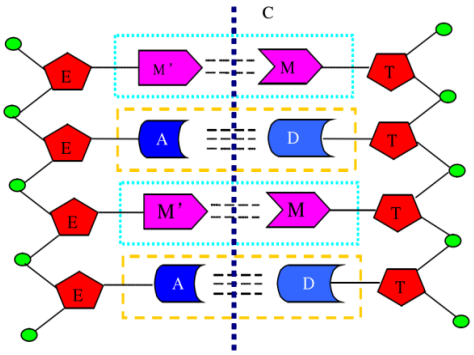

Fig. 4: DNA double helix model plan of brand competitiveness

Value theory: From the aspects of value, it thinks that the brand DNA often has three aspects of values, that's, the functional value, the emotional value and the value of expression itself.

The double helix model of brand competitiveness: From the analysis of the structure and characteristics of DNA double helix structure and brand competitiveness, it can be seen that there are many similarities in the structure composition and performance characteristics between the brand competitiveness and the DNA double helix and these similarities have become the basis of building the double helix model of brand competitiveness.

Based on the above mapping based on brand competitiveness and the double helix, we can make a reasonable mapping and metaphor for the brand competitiveness and the DNA double helix structure. The double helix model of brand competitiveness is shown in Fig. 4.

The mapping relationship between brand competitiveness and the double helix structure is shown in Table 2.

THE EVALUATION OF THE POTATO BRAND COMPETITIVENESS

The samples extraction: It chooses the disproportional distribution method to extract samples in this study. From the two categories of the certified brands and non-certified brands to randomly selected 5 brands and uses the 10 sample brands as the research object, we make a comprehensive evaluation for the potato brand competitiveness. From the overall point of view, we analyze the status quo and inspect the exerting degree of

Table 2: Relational mapping table of DNA double helix model of brand competitiveness

Brand competitiveness	DNA double helix
Brand dominant competitive ability E	The main chain
Brand recessive competition ability T	
Brand competitive C	Virtual axis
Brand market ability M	Cytosine
Brand attraction power A	Adenine
Brand development ability D	Thymine
Brand management ability M'	Guanine

Table 3: The basic condition of the stratified random sample

Serial number	Brand name	The registration date
1	Tengsheng	2000-12-26
2	QingJi	2001-03-04
3	Gaoyun	2008-05-20
4	Suiyi	2009-03-09
5	Qinquan	2009-09-16
6	Xinlong	2010-05-21
7	Wuzhu	No certification
8	Long Shang Da Ping	No certification
9	Xinjin	No certification
10	Diaochanguli	No certification

the four basic groups in the potato brand competitiveness (Table 3).

To determine the weight of criteria layer: It uses the AHP method to give weight for the criterion layer index in the brand competitiveness evaluation index system of potato. The basic idea is through the paired comparison in the same layer index to determine the importance of the upper factors. The 1-9 scale method is used to express the comparison results. The meaning of grade 1 to 9 scale is prescribed in Table 4.

Invite relevant experts to grade as the meaning of each scale shown in the table above, the comparison matrix of the criterion layer index can be constituted then. It is shown in Table 5.

The computing method is shown as follows, that's, Firstly, to make standardization for the judgment matrix A, that's:

$$\bar{a}ij = \frac{aij}{\sum_{i=1}^{n} aij} \quad (1)$$

Secondly, according to line up, Wi can be gained:

$$\bar{W}i = \sum_{i=1}^{n} \bar{a}_{ij} \quad (2)$$

Finally, to normalize again, then the weight coefficient can be obtained:

$$Wi = \frac{\bar{W}i}{\sum_{i=1}^{n} \bar{W}i} \quad (3)$$

The data source of rule layer weight: We choose potato leading enterprise senior management personnel, large potato distributions and scientific research institutions of higher learning in the agricultural product brand to consist the expert group and then they will grade the rule layer index in the brand competitiveness evaluation index system by the way of paired-comparison. We hope that it can through this way to ensure the comprehensiveness and accuracy of the collected information. And the wight matrix of the rule layer is shown in Table 6.

To determine the weight of program layer: In this study, the entropy weight method is used to give weight for the program layer index in the brand competitiveness evaluation index system of potato. It is a kind of objective method and its corresponding relationship between entropy and entropy weight is shown in Table 7.

Using X_{ij} (i = 1, 2, …., n; j = 1, 2, …, m) to express the observed data of the object j in the i[st] index.

Table 4: The definition of all levels of scale

Scale	Definition
1	The two factors have the same importance
3	One factor is slightly more important than another factor
5	One factor is obviously more important than another factor
7	One factor is strongly more important than another factor
9	A factor is extremely important than another factor

Annotation: 2, 4, 6, 8 are the central zone

Table 5: The sketch table of the pair wise comparison method of comparison matrix

...	X1	X2	...	Xn
X1	a11	a12	...	a1n
X2	a21	a22	...	a2n
...	...	...	...	...
Xn	an1	an2	...	ann

Table 6: The weight matrix table of rule layer

	Brand market ability	Brand market ability	Brand market ability	Brand market ability	Brand market ability
Brand market ability	1.0	0.2	2.0	0.4	0.162
Brand attraction power	1.5	1.0	2.5	0.5	0.279
Brand development ability	0.5	0.4	1.0	0.2	0.095
Brand management ability	2.0	2.0	3.0	1.0	0.466

Table 7: Corresponding relations table between entropy and entropy weight

Entropy	Implication	Entropy weight
Smaller	The information provided by the indicator is more	Larger
Larger	The information provided by the indicator is less	Smaller
Maximum	The index fails to provide any useful information	The index can be eliminated

Table 8: Each index weight in the solution layer

Solution layer	Serial number	Entropy	Entropy weight
Market possession ability	X11	0.908996041	0.5149
Market profitability	X12	0.914276286	0.4851
Brand awareness	X21	0.910734665	0.5211
Brand reputation	X22	0.917965386	0.4789
Brand satisfaction	X32	0.919667817	0.5977
Brand loyalty	X32	0.945926682	0.4023
The product quality	X41	0.902686211	0.4283
Brand positioning	X42	0.942637115	0.2525
Brand communication	X43	0.927456943	0.3193

Table 9: The computing results of potato brand competitiveness

Brand name	Scores
Tengsheng	4.427
QingJi	4.143
Gaoyun	3.205
Suiyi	3.701
Qinquan	3.530
Xinlong	3.523
Wuzhu	3.412
Long Shang Da Ping	2.780
Xinjin	2.132
Diaochanguli	1.911

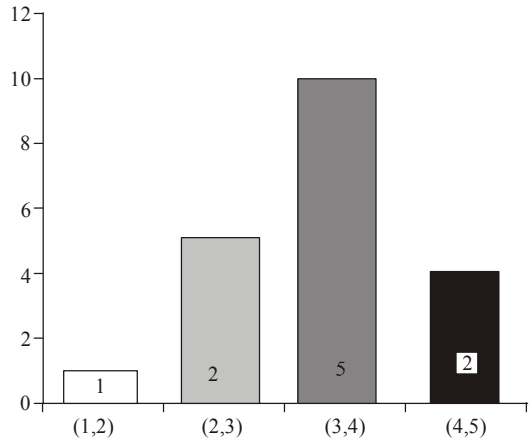

Fig. 5: Comprehensive score classification figure of potato brand competitiveness

Assuming that there are m evaluation indicators and n evaluation objects, then the original data matrix $X = (x_{ij})_{m\times n}$ can be formed. The computing method is shown as follows, that's:

$$X = \begin{bmatrix} X_{11} & \cdots & X_{1n} \\ N & \cdots & N \\ X_{m1} & \cdots & X_{mn} \end{bmatrix} \quad (4)$$

The standardization of the matrix is:

$$R = \left(r_{ij}\right)_{m\times n} \quad (5)$$

In the above formula, r_{ij} is the standard value of the object j in the ist index and $r_{ij} \in [0, 1]$, then we can get:

$$r_{ij} = \frac{x_{ij} - \min\limits_{j}\left\{x_{ij}\right\}}{\max\limits_{j}\left\{x_{ij}\right\} - \min\limits_{j}\left\{x_{ij}\right\}} \quad (6)$$

The second step is to calculate the entropy, the ist entropy is:

$$Hi = -k\sum_{j=1}^{n} f_{ij} \ln f_{ij}, \quad i = 1,2,...,m \quad (7)$$

where, $f_{ij} = r_y / \sum_{j=1}^{n} r_{ij}$, $k = 1/\mathrm{In}n$, when $f_{ij} = 0$, assume f_{ij} In $f_{ij} = 0$.

Finally, to calculate the entropy weight. That's:

$$Wi = \frac{1 - Hi}{m - \sum\limits_{i=1}^{m} Hi} \quad (8)$$

where $0 \le Wi \le 1$, $\sum_{i=1}^{m} Wi = 1$.

Data sources of scheme layer weight: The entropy weight method to calculate the weight, which is based on the original data of questionnaire survey, then according to the formula 6 to standardize and according to the formula 7 to calculate the entropy of scheme layer indicators. Finally it can be calculated the entropy weight of scheme layer indicators according to the formula 8. The results are shown in Table 8.

Through the above analysis, we can calculate the comprehensive scores of the sample brand competitiveness. The final results are shown in Table 9. And the Fig. 5 is the composite scores classification figure.

CONCLUSION

In Fig. 5, it make the potato brand competitiveness composite scores be classified according to the

classification section. The section (Shi *et al*., 2008; Carol and Suzanne, 2010) has two brands, it respectively is Tengsheng, Qing ji and these brands have a strong competitiveness. The section (Kotler *et al*., 2002; Shi *et al*., 2008) has five brands, half of the brands competitiveness score are on this interval and they have strong brand competitiveness. The section (Teece *et al*., 1997; Kotler *et al*., 2002) has two brands, that's, Long Shang Da Ping and Xinjin, their competitiveness is poorer. The section (Duncan and Moriarty, 1999; Teece *et al*., 1997) is only one brand -Diao Chan Gu Li, the competitiveness of the brand is very poor.

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